



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

MICHAEL F. EASLEY
GOVERNOR

LYNDO TIPPETT
SECRETARY

April 15, 2004

U.S. Army Corps of Engineers
Raleigh Field Office
6508 Falls of the Neuse Road/Suite 120
Raleigh, NC 27615

ATTENTION: Mr. John Thomas, Jr.,
NCDOT Coordinator

Dear Sir:

SUBJECT: **Nationwide 23, 33, and 12 Permit Application** for the replacement of Bridge No. 359 over Prong Alamance Creek on SR 3143 (Mill Stream Road) in Guilford County, Federal Project No. BRZ-3143 (7), State Project No. 8.2495701, WBS Element 33197.1.1, T.I.P. No. B-3651.

Please find enclosed three copies of the Categorical Exclusion (CE) Document, permit drawings, utility drawings, and design plan sheets. The North Carolina Department of Transportation (NCDOT) proposes to replace Bridge No. 359 over Prong Alamance Creek. The project involves replacing Bridge No. 359 on a new location east of the existing bridge with a triple barrel 10-foot wide by 8-foot wide reinforced concrete box culvert. There will also be a 12-inch water utility line positioned across streambed in project area. SR 3143 will be widened to accommodate two 12-foot travel lanes and on 12-foot center turn lane. Traffic will be detoured on-site using the existing structure during construction.

IMPACTS TO WATERS OF THE UNITED STATES

The project is located within the Cape Fear River Basin (03-06-03 sub-basin). Prong Alamance Creek is the only water resource in the project area. The project will result in permanent surface water impacts of 200 linear feet to Prong Alamance Creek from the placement of culvert and 44 linear feet of temporary impacts from the utility pipe installation and 0.005 acres of temporary impacts for dewatering during pipe installation. Best Management Practices for Protection of Surface Waters will be implemented as applicable.

Prong Alamance Creek is a well-defined perennial stream with moderate flow. The stream averages 25 feet in width with a water depth of 2 feet. The substrate is comprised primarily of silt, gravel, cobble, riprap, and boulders. Prong Alamance Creek has been assigned DWQ Index

MAILING ADDRESS:
NC DEPARTMENT OF TRANSPORTATION
PROJECT DEVELOPMENT AND ENVIRONMENTAL ANALYSIS
1548 MAIL SERVICE CENTER
RALEIGH NC 27699-1548

TELEPHONE: 919-733-3141
FAX: 919-733-9794

WEBSITE: WWW.NCDOT.ORG

LOCATION:
TRANSPORTATION BUILDING
1 SOUTH WILMINGTON STREET
RALEIGH NC

No. 16-19-3-(0.5) by the North Carolina Division of Water Quality and best usage classifications of WS-IV NSW.

Bridge Demolition

The superstructure of Bridge No. 359 is composed of a timber deck on steel I-beams. The substructure end bents are composed of timber caps and vertical piles. The bridge is a single span structure approximately 26 feet in length and a roadway width of 23 feet. Removal of the superstructure and the substructure will not create any temporary fill into waters of the United States.

Culvert Phasing

The project will be constructed in three phases.

Phase 1

1. Construct 84 x50 stilling basin left of proposed construction.
2. Construct temporary diversion channel (6 foot base, 1:5:1 side slopes).
3. Install impervious dike "A" (approximately 5 foot from east side of proposed RCBC) and divert water into the temporary diversion ditch.
4. Construct all three barrels of the 3@ 10 x 9 RCBC's with the exception of the Northeast (upstream) and Southeast (downstream) wingwalls. Do not build the 2 foot concrete sill in barrel 3. Sheet piles may be required for upstream side.

Phase 2

1. Construct impervious dike "B" and "C" and remove impervious dike "A". This diverts water away from the diversion channel into barrel 3.
2. Construct Northeast and Southeast wingwalls.
3. Remove stilling basin.
4. Construct roadway fill and install required erosion control measures.
5. Construct downstream channel improvements and place required riprap.
6. Complete roadway construction and shift traffic to new roadway.
7. Construct upstream channel improvements and remove old roadbed embankment.
8. Remove impervious dikes "B" and "C".

Phase 3

1. Construct impervious dike "D" and "E". This diverts water away from barrel 3 and forces flow into barrel 1 and 2.
2. Construct 2-foot concrete sill in barrel 3.
3. Remove impervious dikes.
4. Remove all erosion control devices.

Utilities

The City of Greensboro has a 12-inch water line that will be placed 3 feet below the existing and proposed ground line and 2 feet below the streambed on the southeast side of culvert. The utility line will cross the stream where the width is approximately 23 feet and will be installed by an open cut procedure. Directional boring for this project is not an option due to the ductile iron material used for the pipe and topography limitations. The utility pipe will be placed prior to culvert installation and impacts are not concurrent. The length of temporary impacts to Prong Alamance Creek from utility pipe installation is 44 linear feet. The area of temporary fill for the median barrier and sandbags for dewatering is 0.005 acres. Pipe installation will be accomplished through a phased dewatering approach. The installation (option 1) will be done by the contractor in 2 stages (see attached drawings).

Stage 1

- 1) Place temporary fill in Stage 1. Temporary fill consists of median barrier protected by sandbags.
- 2) Dig the trench.
- 3) Install the pipe half way across stream and plug the end.
- 4) Remove temporary fill for stage 1.

Stage 2

- 1) Install the temporary fill for Stage 2.
- 2) Continue the trench and install the pipe connecting it to the pipe, which has already been installed.
- 3) Remove the Stage 2 temporary fill.

Restoration Plan

Following construction of the culvert, all material used in the construction of the structure will be removed. The impact area associated with the culvert is expected to recover naturally, since the natural streambed and plant material will not be removed. NCDOT does not propose any additional planting in this area. Class I riprap will be used for bank stabilization. Pre-project elevations will be restored. NCDOT will restore stream to its pre-project contours.

Schedule: The project calls for a letting of June 15, 2004 with a date of availability of July 28, 2004. It is expected that contractor will choose to start construction in July.

Removal and Disposal Plan: The contractor will be required to submit a reclamation plan for the removal of and disposal of all material off-site at an upland location. The contractor will use excavation equipment for removal of any earthen material. Heavy-duty trucks, dozers, cranes and various other pieces of mechanical equipment necessary for construction of roadways and culverts will be used on site. All material placed in the stream will be removed from the stream at that time. The contractor will have the option of reusing any of the materials that the engineer deems suitable in the construction of project. After the erosion control devices and impervious dikes are no longer needed, all temporary materials will become the property of the contractor.

MITIGATION OPTIONS

Despite the minimization strategies employed for the proposed project, the resulting surface water impacts will be greater than 150 feet. Consequently, the project will require compensatory mitigation.

AVOIDANCE AND MINIMIZATION: The NCDOT is committed to incorporating all reasonable and practicable design features to avoid and minimize jurisdictional impacts, and to provide full compensatory mitigation of all remaining, unavoidable jurisdictional impacts. Avoidance measures were taken during the planning and NEPA compliance stages; minimization measures were incorporated as part of the project design.

According to the Clean Water Act (CWA) §404(b)(1) guidelines, NCDOT must avoid, minimize, and mitigate, in sequential order, impacts to waters of the US. The following is a list of the project's jurisdictional stream avoidance/minimization activities proposed or completed by NCDOT:

Minimization:

- A phased sequence for the culvert and water utility pipe installation will be followed.
- An onsite detour using the existing structure will be used.
- Limited instream activities.

Based on the above considerations, it is determined that there is no practicable alternative to the proposed construction in jurisdictional waters of the US and that the proposed action includes all practicable methods to avoid and/or minimize jurisdictional stream impacts that may result from such use.

COMPENSATION: The primary emphasis of the compensatory mitigation is to reestablish a condition that would have existed if the project were not built. As previously stated, mitigation is limited to reasonable expenditures and practicable considerations related to highway operation. Mitigation is generally accomplished through a combination of methods designed to replace stream loss as a result of construction of the project.

Based upon the agreements stipulated in the “Memorandum of Agreement Among the North Carolina Department of Environment and Natural Resources, the North Carolina Department of Transportation, and the U.S. Army Corps of Engineers, Wilmington District” (MOA), it is understood that the North Carolina Department of Environment and Natural Resources Ecosystem Enhancement Program (EEP), will assume responsibility for satisfying the federal Clean Water Act compensatory mitigation requirements for NCDOT projects that are listed in Exhibit 1 of the subject MOA during the EEP transition period which ends on June 30, 2005.

Since the subject project is listed in Exhibit 1, the remaining necessary compensatory mitigation to offset unavoidable impacts to waters that are jurisdictional under the federal Clean Water Act will be provided by the EEP. A request letter dated March 25, 2004 has been sent to EEP and a copy of letter is attached. The offsetting mitigation will derive from an inventory of assets already in existence within the same 8-digit cataloguing unit. The Department has avoided and minimized impacts to jurisdictional resources to the greatest extent possible as described above. The remaining, unavoidable permanent impacts to 200 linear feet of a jurisdictional stream will be offset by compensatory mitigation provided by the EEP program.

FEDERALLY-PROTECTED SPECIES

Plants and animals with federal classification of Endangered (E), Threatened (T), Proposed Endangered (PE), and Proposed Threatened (PT) are protected under the provisions of Section 7 and Section 9 of the Endangered Species Act of 1973, as amended. As of January 29, 2003 the United States Fish and Wildlife Service (FWS) lists one federally protected species for Guilford County, the bald eagle (*Haliaeetus leucocephalus*). A biological conclusion of “No Effect” due to lack of suitable habitat remains valid for the bald eagle.

REGULATORY APPROVALS

Section 404 Permit: This project is being processed by the Federal Highway Administration as a “Categorical Exclusion” in accordance with 23 CFR 771.115(b). The NCDOT requests that these activities be authorized by a Nationwide Permit 23 (67 FR 2020; January 15, 2002). We are also requesting the issuance of a Nationwide Permit 33 authorizing temporary dewatering of the stream for the culvert construction and utility pipe installation and a Nationwide 12 for the utility pipe.

Section 401 Permit: We anticipate 401 General Water Quality Certification (WQC) 3403 and 3366 will apply to this project. The NCDOT will adhere to all general conditions of these WQCs. Therefore, written concurrence from the NCDWQ is not required. In accordance with 15A NCAC 2H 0.0501(a) and 15A NCAC 2B 0.200 we are providing two copies of this application to the North Carolina Department of Environment and Natural Resources, Division of Water Quality, as notification.

A copy of this permit application will be posted on the NCDOT website at: <http://www.ncdot.org/planning/pe/naturalunit/Permit.html>. If you have any questions or need additional information please call Ms. Deanna Riffey at (919) 715-1409.

Sincerely,



Gregory J. Thorpe, Ph.D., Environmental Management Director,
Project Development Environmental Analysis Branch

Cc:

w/attachment

Mr. John Hennessy, Division of Water Quality (2 copies)
Mr. Travis Wilson, NCWRC
Mr. Gary Jordan, USFWS
Mr. Greg Perfetti, P.E., Structure Design

w/o attachment

Mr. David Franklin, USACE, Wilmington
Mr. Jay Bennett, P.E., Roadway Design
Mr. Omar Sultan, Programming and TIP
Mr. Art McMillan, P.E., Highway Design
Mr. David Chang, P.E., Hydraulics
Mr. Mark Staley, Roadside Environmental
Mr. J. M. Mills, P.E.
Mr. Jerry Parker, DEO
Ms. Marie Sutton, PDEA Project Planning Engineer

Office Use Only:

Form Version May 2002

USACE Action ID No. _____

DWQ No. _____

(If any particular item is not applicable to this project, please enter "Not Applicable" or "N/A".)

I. Processing

1. Check all of the approval(s) requested for this project:

☒ Section 404 Permit☐

Riparian or Watershed Buffer Rules

☐ Section 10 Permit☐

Isolated Wetland Permit from DWQ

☐ 401 Water Quality Certification

2. Nationwide, Regional or General Permit Number(s) Requested: NW 12, 23, and 33
3. If this notification is solely a courtesy copy because written approval for the 401 Certification is not required, check here: ☒
4. If payment into the North Carolina Wetlands Restoration Program (NCWRP) is proposed for mitigation of impacts (verify availability with NCWRP prior to submittal of PCN), complete section VIII and check here: ☐
5. If your project is located in any of North Carolina's twenty coastal counties (listed on page 4), and the project is within a North Carolina Division of Coastal Management Area of Environmental Concern (see the top of page 2 for further details), check here: ☐

II. Applicant Information

1. Owner/Applicant Information

Name: NCDOTMailing Address: Project Development & Environmental Analysis Branch1548 Mail Service CenterRaleigh, NC 27699-1548Telephone Number: (919) 733-3141Fax Number: (919) 733-9794E-mail Address: gthorpe@dot.state.nc.us

2. Agent/Consultant Information (A signed and dated copy of the Agent Authorization letter must be attached if the Agent has signatory authority for the owner/applicant.)

Name: _____

Company Affiliation: _____

Mailing Address: _____

Telephone Number: _____

Fax Number: _____

E-mail Address: _____

III. Project Information

Attach a **vicinity map** clearly showing the location of the property with respect to local landmarks such as towns, rivers, and roads. Also provide a detailed **site plan** showing property boundaries and development plans in relation to surrounding properties. Both the vicinity map and site plan must include a scale and north arrow. The specific footprints of all buildings, impervious surfaces, or other facilities must be included. If possible, the maps and plans should include the appropriate USGS Topographic Quad Map and NRCS Soil Survey with the property boundaries outlined. Plan drawings, or other maps may be included at the applicant's discretion, so long as the property is clearly defined. For administrative and distribution purposes, the USACE requires information to be submitted on sheets no larger than 11 by 17-inch format; however, DWQ may accept paperwork of any size. DWQ prefers full-size construction drawings rather than a sequential sheet version of the full-size plans. If full-size plans are reduced to a small scale such that the final version is illegible, the applicant will be informed that the project has been placed on hold until decipherable maps are provided.

1. Name of project: Replacement of Bridge No. 359 on SR 3143 (Mill Stream Rd) Over Prong Alamance Creek in Guilford County
2. T.I.P. Project Number or State Project Number (NCDOT Only): B-3651
3. Property Identification Number (Tax PIN): _____
4. Location
County: Guilford Nearest Town: Greensboro
Subdivision name (include phase/lot number): _____
Directions to site (include road numbers, landmarks, etc.): Southeast of Greensboro, approximately 0.35 miles north of intersection of SR 3000 (McConnell Rd) and SR 3143 (Millstream Rd).

5. Site coordinates, if available (UTM or Lat/Long): 36° 02' 55" N / 79° 39' 51" W
(Note – If project is linear, such as a road or utility line, attach a sheet that separately lists the coordinates for each crossing of a distinct waterbody.)
6. Property size (acres): Approximately 3.5 acres
7. Nearest body of water (stream/river/sound/ocean/lake): Prong Alamance Creek
8. River Basin: Cape Fear
(Note – this must be one of North Carolina's seventeen designated major river basins. The River Basin map is available at <http://h2o.enr.state.nc.us/admin/maps/>.)

9. Describe the existing conditions on the site and general land use in the vicinity of the project at the time of this application: SR 3143 is a Minor Arterial. Land use in the project area is rural with scattered residential development.
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10. Describe the overall project in detail, including the type of equipment to be used: Bridge No. 359 will be replaced on a new location east of the existing bridge with a triple barrel 10-foot wide by 8-foot wide reinforced concrete box culvert. A 12-inch water utility line will be placed across streambed prior to culvert installation. SR 3143 will be widened to accommodate two 12-foot travel lanes and one 12-foot center turn lane. Traffic will be detoured on-site using the existing structure during construction. Once the new culvert is completed, the old roadway and bridge material will be removed. Construction will be performed using heavy equipment such as dozers, loaders and cranes.
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11. Explain the purpose of the proposed work: Bridge No. 359 is considered to be structurally deficient and functionally obsolete,
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-
-

IV. Prior Project History

If jurisdictional determinations and/or permits have been requested and/or obtained for this project (including all prior phases of the same subdivision) in the past, please explain. Include the USACE Action ID Number, DWQ Project Number, application date, and date permits and certifications were issued or withdrawn. Provide photocopies of previously issued permits, certifications or other useful information. Describe previously approved wetland, stream and buffer impacts, along with associated mitigation (where applicable). If this is a NCDOT project, list and describe permits issued for prior segments of the same T.I.P. project, along with construction schedules.

N/A

V. Future Project Plans

Are any future permit requests anticipated for this project? If so, describe the anticipated work, and provide justification for the exclusion of this work from the current application.

N/A

VI. Proposed Impacts to Waters of the United States/Waters of the State

It is the applicant's (or agent's) responsibility to determine, delineate and map all impacts to wetlands, open water, and stream channels associated with the project. The applicant must also provide justification for these impacts in Section VII below. All proposed impacts, permanent and temporary, must be listed herein, and must be clearly identifiable on an accompanying site plan. All wetlands and waters, and all streams (intermittent and perennial) must be shown on a delineation map, whether or not impacts are proposed to these systems. Wetland and stream evaluation and delineation forms should be included as appropriate. Photographs may be included at the applicant's discretion. If this proposed impact is strictly for wetland or stream mitigation, list and describe the impact in Section VIII below. If additional space is needed for listing or description, please attach a separate sheet.

1. Provide a written description of the proposed impacts: A total of 200 linear feet of permanent stream impacts during bridge replacement, 44 linear feet of temporary impacts from the utility pipe installation and 0.005 acres of temporary impacts for dewatering during pipe installation will be incurred in the project area. There are no wetland impacts for this project.

2. Individually list wetland impacts below:

Wetland Impact Site Number (indicate on map)	Type of Impact*	Area of Impact (acres)	Located within 100-year Floodplain** (yes/no)	Distance to Nearest Stream (linear feet)	Type of Wetland***
N/A					

* List each impact separately and identify temporary impacts. Impacts include, but are not limited to: mechanized clearing, grading, fill, excavation, flooding, ditching/drainage, etc. For dams, separately list impacts due to both structure and flooding.

** 100-Year floodplains are identified through the Federal Emergency Management Agency's (FEMA) Flood Insurance Rate Maps (FIRM), or FEMA-approved local floodplain maps. Maps are available through the FEMA Map Service Center at 1-800-358-9616, or online at <http://www.fema.gov>.

*** List a wetland type that best describes wetland to be impacted (e.g., freshwater/saltwater marsh, forested wetland, beaver pond, Carolina Bay, bog, etc.) Indicate if wetland is isolated (determination of isolation to be made by USACE only).

List the total acreage (estimated) of all existing wetlands on the property: N/A

Total area of wetland impact proposed: N/A

3. Individually list all intermittent and perennial stream impacts below:

Stream Impact Site Number (indicate on map)	Type of Impact*	Length of Impact (linear feet)	Stream Name**	Average Width of Stream Before Impact	Perennial or Intermittent? (please specify)
Site 1 Proposed Culvert	Permanent	200	Prong Alamance Creek	25 feet	Perennial
Site 1 Water Pipe	Temporary	44	Prong Alamance Creek	23 feet	Perennial
Site 1 Pipe Dewatering	Temporary	0.005 acres	Prong Alamance Creek	23 feet	Perennial

* List each impact separately and identify temporary impacts. Impacts include, but are not limited to: culverts and associated riprap, dams (separately list impacts due to both structure and flooding), relocation (include linear feet before and after, and net loss/gain), stabilization activities (cement wall, riprap, crib wall, gabions, etc.), excavation, ditching/straightening, etc. If stream relocation is proposed, plans and profiles showing the linear footprint for both the original and relocated streams must be included.

** Stream names can be found on USGS topographic maps. If a stream has no name, list as UT (unnamed tributary) to the nearest downstream named stream into which it flows. USGS maps are available through the USGS at 1-800-358-9616, or online at www.usgs.gov. Several internet sites also allow direct download and printing of USGS maps (e.g., www.topozone.com, www.mapquest.com, etc.).

Cumulative impacts (linear distance in feet) to all streams on site: 244 feet

4. Individually list all open water impacts (including lakes, ponds, estuaries, sounds, Atlantic Ocean and any other water of the U.S.) below:

Open Water Impact Site Number (indicate on map)	Type of Impact*	Area of Impact (acres)	Name of Waterbody (if applicable)	Type of Waterbody (lake, pond, estuary, sound, bay, ocean, etc.)
N/A				

* List each impact separately and identify temporary impacts. Impacts include, but are not limited to: fill, excavation, dredging, flooding, drainage, bulkheads, etc.

5. Pond Creation

If construction of a pond is proposed, associated wetland and stream impacts should be included above in the wetland and stream impact sections. Also, the proposed pond should be described here and illustrated on any maps included with this application.

Pond to be created in (check all that apply): ☐ uplands ☐ stream ☐ wetlands

Describe the method of construction (e.g., dam/embankment, excavation, installation of draw-down valve or spillway, etc.): _____

Proposed use or purpose of pond (e.g., livestock watering, irrigation, aesthetic, trout pond, local stormwater requirement, etc.): _____

Size of watershed draining to pond: _____ Expected pond surface area: _____

VII. Impact Justification (Avoidance and Minimization)

Specifically describe measures taken to avoid the proposed impacts. It may be useful to provide information related to site constraints such as topography, building ordinances, accessibility, and financial viability of the project. The applicant may attach drawings of alternative, lower-impact site layouts, and explain why these design options were not feasible. Also discuss how impacts were minimized once the desired site plan was developed. If applicable, discuss construction techniques to be followed during construction to reduce impacts.

Impacts to Site 1 cannot be avoided but are minimized with the use of NCDOT's Best Management Practices for the Protection of Surface Waters, an onsite detour using existing structure, a phased sequence for culvert construction, a staged installation for the utility pipe, limited instream activities, and revegetation of stream banks following the completion of grading.

VIII. Mitigation

DWQ - In accordance with 15A NCAC 2H .0500, mitigation may be required by the NC Division of Water Quality for projects involving greater than or equal to one acre of impacts to freshwater wetlands or greater than or equal to 150 linear feet of total impacts to perennial streams.

USACE – In accordance with the Final Notice of Issuance and Modification of Nationwide Permits, published in the Federal Register on March 9, 2000, mitigation will be required when necessary to ensure that adverse effects to the aquatic environment are minimal. Factors including size and type of proposed impact and function and relative value of the impacted aquatic resource will be considered in determining acceptability of appropriate and practicable mitigation as proposed. Examples of mitigation that may be appropriate and practicable include, but are not limited to: reducing the size of the project; establishing and maintaining wetland and/or upland vegetated buffers to protect open waters such as streams; and replacing losses of

aquatic resource functions and values by creating, restoring, enhancing, or preserving similar functions and values, preferable in the same watershed.

If mitigation is required for this project, a copy of the mitigation plan must be attached in order for USACE or DWQ to consider the application complete for processing. Any application lacking a required mitigation plan or NCWRP concurrence shall be placed on hold as incomplete. An applicant may also choose to review the current guidelines for stream restoration in DWQ's Draft Technical Guide for Stream Work in North Carolina, available at <http://h2o.enr.state.nc.us/newetlands/strmgide.html>.

1. Provide a brief description of the proposed mitigation plan. The description should provide as much information as possible, including, but not limited to: site location (attach directions and/or map, if offsite), affected stream and river basin, type and amount (acreage/linear feet) of mitigation proposed (restoration, enhancement, creation, or preservation), a plan view, preservation mechanism (e.g., deed restrictions, conservation easement, etc.), and a description of the current site conditions and proposed method of construction. Please attach a separate sheet if more space is needed.

EEP is covering mitigation for this project.

2. Mitigation may also be made by payment into the North Carolina Wetlands Restoration Program (NCWRP). Please note it is the applicant's responsibility to contact the NCWRP at (919) 733-5208 to determine availability and to request written approval of mitigation prior to submittal of a PCN. For additional information regarding the application process for the NCWRP, check the NCWRP website at <http://h2o.enr.state.nc.us/wrp/index.htm>. If use of the NCWRP is proposed, please check the appropriate box on page three and provide the following information:

Amount of stream mitigation requested (linear feet): 200

Amount of buffer mitigation requested (square feet): _____

Amount of Riparian wetland mitigation requested (acres): _____

Amount of Non-riparian wetland mitigation requested (acres): _____

Amount of Coastal wetland mitigation requested (acres): _____

IX. Environmental Documentation (required by DWQ)

Does the project involve an expenditure of public (federal/state) funds or the use of public (federal/state) land?

Yes ☒ No ☐

If yes, does the project require preparation of an environmental document pursuant to the requirements of the National or North Carolina Environmental Policy Act (NEPA/SEPA)?

Note: If you are not sure whether a NEPA/SEPA document is required, call the SEPA coordinator at (919) 733-5083 to review current thresholds for environmental documentation.

Yes ☒ No ☐

If yes, has the document review been finalized by the State Clearinghouse? If so, please attach a copy of the NEPA or SEPA final approval letter.

Yes ☒ No ☐

X. Proposed Impacts on Riparian and Watershed Buffers (required by DWQ)

It is the applicant's (or agent's) responsibility to determine, delineate and map all impacts to required state and local buffers associated with the project. The applicant must also provide justification for these impacts in Section VII above. All proposed impacts must be listed herein, and must be clearly identifiable on the accompanying site plan. All buffers must be shown on a map, whether or not impacts are proposed to the buffers. Correspondence from the DWQ Regional Office may be included as appropriate. Photographs may also be included at the applicant's discretion.

Will the project impact protected riparian buffers identified within 15A NCAC 2B .0233 (Neuse), 15A NCAC 2B .0259 (Tar-Pamlico), 15A NCAC 2B .0250 (Randleman Rules and Water Supply Buffer Requirements), or other (please identify _____)?

Yes ☐ No ☒ If you answered "yes", provide the following information:

Identify the square feet and acreage of impact to each zone of the riparian buffers. If buffer mitigation is required calculate the required amount of mitigation by applying the buffer multipliers.

Zone*	Impact (square feet)	Multiplier	Required Mitigation
1		3	
2		1.5	
Total			

* Zone 1 extends out 30 feet perpendicular from near bank of channel; Zone 2 extends an additional 20 feet from the edge of Zone 1.

If buffer mitigation is required, please discuss what type of mitigation is proposed (i.e., Donation of Property, Conservation Easement, Riparian Buffer Restoration / Enhancement, Preservation or Payment into the Riparian Buffer Restoration Fund). Please attach all appropriate information as identified within 15A NCAC 2B .0242 or .0260.

XI. Stormwater (required by DWQ)

Describe impervious acreage (both existing and proposed) versus total acreage on the site. Discuss stormwater controls proposed in order to protect surface waters and wetlands downstream from the property.

N/A

XII. Sewage Disposal (required by DWQ)

Clearly detail the ultimate treatment methods and disposition (non-discharge or discharge) of wastewater generated from the proposed project, or available capacity of the subject facility.

N/A

XIII. Violations (required by DWQ)

Is this site in violation of DWQ Wetland Rules (15A NCAC 2H .0500) or any Buffer Rules?

Yes ☐

No ☒

Is this an after-the-fact permit application?

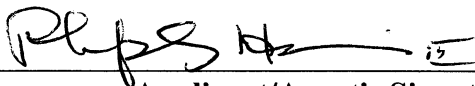
Yes ☐

No ☒

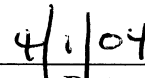
XIV. Other Circumstances (Optional):

It is the applicant's responsibility to submit the application sufficiently in advance of desired construction dates to allow processing time for these permits. However, an applicant may choose to list constraints associated with construction or sequencing that may impose limits on work schedules (e.g., draw-down schedules for lakes, dates associated with Endangered and Threatened Species, accessibility problems, or other issues outside of the applicant's control).

N/A



Applicant/Agent's Signature



Date

(Agent's signature is valid only if an authorization letter from the applicant is provided.)

**Guilford County
Bridge No. 359 on SR 3143 (Mill Stream Rd.)
over Prong Alamance Creek
Federal Aid Project No. BRZ-3143(7)
State Project No. 8.2495701
T.I.P. No. B-3651**

CATEGORICAL EXCLUSION

UNITED STATES DEPARTMENT OF TRANSPORTATION

FEDERAL HIGHWAY ADMINISTRATION

AND

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

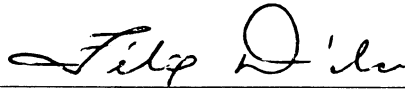
DIVISION OF HIGHWAYS

APPROVED:

7/30/02
DATE


Robert P. Hanson, PE, Assistant Manager
Project Development and Environmental Analysis Branch, NCDOT

7/30/02
DATE

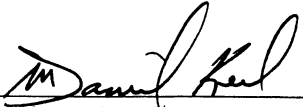
for 
Nicholas L. Graf, PE
Division Administrator, FHWA

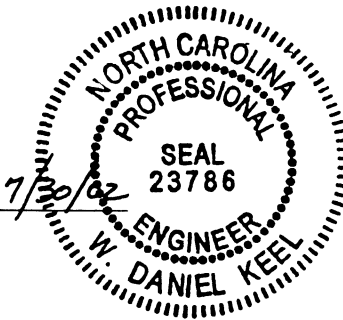
**Guilford County
Bridge No. 359 on SR 3143 (Mill Stream Rd.)
over Prong Alamance Creek
Federal Aid Project No. BRZ-3143(7)
State Project No. 8.2495701
T.I.P. No. B-3651**


CATEGORICAL EXCLUSION

July 2002

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PROJECT COMMITMENTS

No special project commitments are required.

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INTRODUCTION: Bridge No. 359 is included in the 2002-2008 North Carolina Department of Transportation (NCDOT) Transportation Improvement Program and in the Federal-Aid Bridge Replacement Program for right of way acquisition in fiscal year (FY) 2003 and construction in FY 2004. The location is shown in Figure 1. No significant environmental impacts are anticipated. The project is classified as a Federal "Categorical Exclusion".

I. PURPOSE AND NEED STATEMENT

Bridge Maintenance Unit records indicate the bridge has a sufficiency rating of 48.5 out of a possible 100 for a new structure. The bridge is considered to be structurally deficient and functionally obsolete. The replacement of this inadequate structure will result in safer traffic operations.

II. EXISTING CONDITIONS

The project is located in Guilford County, southeast of Greensboro approximately 0.35 miles (0.56 km) north of the intersection of SR 3000 (McConnell Rd.) and SR 3143 (Millstream Rd.) (see Figure 1 for map showing location). Land use in this area is rural with scattered residential development. However, this area of Guilford County is experiencing rapid residential development. There is an existing subdivision approximately 350 feet (105 meters) southwest of the existing bridge and there is a subdivision under construction north of the bridge and east of SR 3143. There are subdivisions planned for the northwest and southeast quadrants of the project area as well.

SR 3143 (Millstream Rd.) is classified as a Minor Arterial in the Statewide Functional Classification System and as a Federal-Aid Highway. This section of SR 3143 is not included in the TIP as needing incidental bicycle and pedestrian accommodations.

In the vicinity of the bridge, SR 3143 (Millstream Rd.) is a two-lane roadway with 18 foot (5.4 meters) pavement and 8-foot (2.4 meter) grassed shoulders.

Bridge No. 359 is a single-span structure that consists of a timber deck on steel I-beams. The abutments consist of timber caps, piles, and bulkheads. The existing bridge was constructed in 1950. The overall length of the structure is 26 feet (7.8 meters). The clear roadway width is 22 feet (6.6 meters) which provides for two through lanes. The posted weight limit on this bridge is 19 tons (17,237 kg) for single vehicles and 24 tons (21,772 kg) for TTST's.

The City of Greensboro has a 12 inch (30 cm) water line along the east side of SR 3143 (Millstream Rd.) and an 8 inch (20 cm) sewer line along the west side. They also have a 12 inch (30 cm) outfall line crossing under SR 3143 approximately 75 feet (22.5 meters) north of the existing bridge. Piedmont natural gas has a 6 inch (15 cm) line along the west side of SR 3143 throughout the project area. Duke power has aerial service in this area with cable television distribution cables attached. MCI has fiber optic lines along the west side of SR 3143 and aerial across the creek. Southern Net Fiber has fiber optic lines along the west side of SR 3143 and aerial across the creek. Bell South has underground cables along both sides of the existing road and aerial across the creek.

The current traffic volume of 1,500 vehicles per day (VPD) is expected to increase to 3,800 VPD by the year 2025. The projected volume includes 1 percent truck-tractor semi-trailer (TTST) and 2 percent dual-tired vehicles (DT). The posted speed limit is 45 miles per hour (63 km/h) in the project area.

No accidents have been reported in the vicinity of Bridge No. 359 during the period from January 1997 to December 2000.

School buses cross the bridge 13 times daily on their routes.

III. ALTERNATIVES

A. Project Description

The recommended replacement structure will be a triple (3) barrel 10-foot wide by 8-foot (3.0 X 2.4 m) high reinforced concrete box culvert. This structure will be of sufficient length to provide three 12-foot (3.6 meter) lanes with curb and gutter and 10-foot (3.0 meter) berms across the creek.

The roadway grade of the new structure will be approximately the same as the grade of the existing bridge. The design speed for the roadway will be approximately 50 miles per hour (70 km/hr).

SR 3143 (Millstream Rd.) will be widened to a 34-foot to 40-foot face-to-face curb and gutter section with 10-foot berms. This will accommodate two 12-foot (3.6 meter) travel lanes and one 12-foot (3.6 meter) center turn lane. Typical sections of the proposed roadway are included as Figures 3A and 3B.

B. Reasonable and Feasible Alternatives

One reasonable and feasible alternative for replacing Bridge No. 359 was considered.

Alternative 1 (preferred) involves replacing Bridge No. 359 on new location east of the existing bridge, as seen in Figure 4. Traffic will be detoured on-site using the existing structure during construction.

C. Alternatives Eliminated From Further Study

An “offsite detour alternative” would have conflicted with the preferred offsite detour alternative for Bridge No. 227 (TIP Project No. B-3649) that is scheduled for construction at approximately the same time.

The “do-nothing” alternative will eventually necessitate closure of the bridge. This is not acceptable due to the traffic service provided by SR 3143 (Millstream Rd.).

“Rehabilitation” of the old bridge is not feasible due to its age and deteriorated condition.

D. Preferred Alternative

Alternative 1, replacing the existing bridge with a culvert on new alignment while maintaining traffic, is the preferred alternate. Alternative 1 was selected because it replaces Bridge No. 359 by the most economical and least environmentally damaging method. It also avoids interference with the construction of Bridge No. 227 (B-3649).

The Guilford County School Transportation Director and the Guilford County Emergency Services Deputy Director indicated that maintaining traffic on-site during the construction period is preferred.

IV. ESTIMATED COSTS

The estimated costs for the proposed improvements is as follows:

	Alternative 1
Structure	\$ 287,230
Roadway Approaches	\$ 798,000
Detour Structure	- 0 -
Structure Removal	\$ 10,510
Eng. & Contingencies	\$ 154,000
Total Construction Cost	\$1,250,000
Right of way Costs	\$ 298,000
Total Project Cost	\$1,548,000

The estimated cost of the project shown in the 2004-2010 Draft NCDOT Transportation Improvement Program is \$1,350,000, including \$75,000 spent in prior years, \$25,000 for right of way, and \$1,250,000 for construction.

V. NATURAL RESOURCES

A. METHODOLOGY

Research was conducted prior to field investigations. Published resource information pertaining to the project area was gathered and reviewed. Resources utilized in this preliminary investigation of the project area include:

- Geological Survey (USGS) quadrangle maps (McCleansville).
- NCDOT aerial photographs of the project area (1:100).
- USDA Soil Conservation Service, currently known as Natural Resource Conservation Service. Soil Survey of Guilford County, North Carolina (1977).
- NC Center for Geographic Information and Analysis Environmental Sensitivity Base Maps of Guilford County (1995).

Water resource information was obtained from publications of the Department of Environment, Health and Natural Resources (DEHNR, 1993). Information concerning the occurrence of federal and state protected species in the study area was obtained from the US Fish and Wildlife Service list of protected and candidate species (February 26, 2001) and from the N.C. Natural Heritage Program (NCNCNHP) database of rare species and unique habitats. NCNHP files were reviewed for documented occurrences of state or federally listed species and locations of significant natural areas.

NCDOT Environmental Biologists conducted general field surveys in the proposed project area on March 14, 2001. Water resources were identified and their physical characteristics were recorded. Plant communities and their associated wildlife were also identified and described. Terrestrial community classifications generally follow Schafale and Weakley (1990) where possible, and plant taxonomy follows Radford, *et al.* (1968). Animal taxonomy follows Martof, *et al.* (1980), Menhenick (1991), Potter, *et al.* (1980), and Webster, *et al.* (1985). Vegetative communities were mapped utilizing aerial photography of the project site. Predictions regarding wildlife community composition involved general qualitative habitat assessment based on existing vegetative communities. Wildlife identification involved using a variety of observation techniques: qualitative habitat assessment based on vegetative communities, active searching, identifying characteristic signs of wildlife (sounds, scat, tracks and burrows). Cursory surveys of aquatic organisms were conducted and tactile searches for benthic organisms were administered as well. Organisms captured during these searches were identified and then released.

Jurisdictional wetlands, if present, were identified and evaluated based on criteria established in the "Corps of Engineers Wetland Delineation Manual" (Environment Laboratory, 1987) and "Guidance for Rating the Values of Wetlands in North Carolina" (Division of Environmental Management, 1995). Wetlands were classified based on the classification scheme of Cowardin, *et al.* (1979).

B. PHYSIOGRAPHY AND SOILS

Soil and water resources that occur in the project area are discussed below with respect to possible environmental concerns. Soil properties and site topography significantly influence the potential for soil erosion and compaction, along with other possible construction limitations or management concerns. Water resources within the project area present important management limitations due to the need to regulate water movement and the increased potential for water quality degradation. Excessive soil disturbance resulting from construction activities can potentially alter both the flow and quality of water resources, limiting downstream uses. In addition, soil characteristics and the availability of water directly influence the composition and distribution of flora and fauna in biotic communities, thus affecting the characteristics of these resources.

Guilford County lies within the piedmont physiographic region of north central North Carolina. The county is generally rolling with moderately steep slopes along the drainageways. Dominant soils include mostly sandy clay loams. Elevation of the Prong Alamance Creek in the project area is approximately 620 feet. The county is drained by tributaries of the Deep River to the south and the Haw River to the east.

The southeastern half of Guilford County is primarily underlain with soils in the Enon-Mecklenburg Association. This association is comprised of well-drained, sandy clay loam, clay loam, and loamy soils that have a clayey subsoil. There are three soil types located in the project area. A brief description of each soil type is provided.

- Chewacla sandy loam (Ch) is a nearly level, somewhat poorly-drained soil located in long, flat areas parallel to major streams on the floodplains. In the project area, this soil is found in a narrow band along both sides of the Prong Alamance Creek. The surface layer is a 12-inch (30.5 cm) thick brown sandy loam and silt loam, underlain with sandy loam and clay loam layers. Hazards include severe erosion in unvegetated areas, and medium runoff. Both permeability and available water capacity are moderate and the shrink-swell potential is low. Depth to bedrock is more than 5 feet (1.5 meter). Depth to the seasonal high water table is 6 to 18 inches (15 to 46 cm). This soil is commonly flooded for brief periods and is classified as a secondary hydric soil (primarily non-hydric with hydric inclusions).
- Wilkes sandy loam, 15 to 45 percent slopes (WkE) is a well drained soil located on side slopes adjacent to major drainageways. In the project area, this soil is found bordering the Chewacla soil, along the north side and southeast side of the Prong Alamance Creek. Typically, the surface layer is a 7 inch (18 cm) thick dark brown sandy loam, underlain by sandy loam and clay loam horizons. Depth to bedrock is 40 to 80 inches (102 to 204 cm). This soil has a slow surface runoff. Permeability is moderately slow and the shrink-swell potential is moderate. The seasonal high water table is more than 6 feet (2 meters) deep.
- Enon fine sandy loam, 6 to 10 percent slopes (EnC) is a well drained soil on long narrow side slopes on uplands. This loam is found in the southwestern quadrant of the project area south of the Chewacla soil band. Typically, the surface layer is dark grayish brown fine sandy loam about 3 inches thick, underlain by fine sandy loam, clay loam, and clay layers. Depth to bedrock is more than 5 feet (1.5 meters). The organic matter content of the surface

layer is low. Permeability is slow and the shrink-swell potential is high. The seasonal high water table is at a depth of 1 to 2 feet (0.3 to 0.6 meters).

C. WATER RESOURCES

This section contains information concerning surface water resources likely to be impacted by the proposed project. Water resource assessments include the physical characteristics, best usage standards, and water quality aspects of the water resources, along with their relationship to major regional drainage systems. Probable impacts to surface water resources are also discussed, as are means to minimize impacts.

Water resources within the study area are located in the Upper Cape Fear River Drainage Basin, Subbasin 03-06-03, and Hydrologic Unit 03030002 of the Cape Fear River Drainage Basin. The Cape Fear River Basin is the largest river basin in the state, covering 9,324 square miles (14,769 sq. km) of land and water (NCDENR 1998). Prong Alamance Creek is the only water resource in the project study area.

1. Best Usage Classification

Streams have been assigned a best usage classification by the Division of Water Quality (DWQ) which reflects water quality conditions and potential resource usage. Unnamed tributaries receive the same classification as the streams to which they flow. The classification for Prong Alamance Creek [DEM Index No. 16-19-3-(0.5), 8/3/92] is **WS-IV NSW**. Waters classified as **WS-IV waters** are used as sources of water supply for drinking, culinary, or food processing purposes for those users where a more stringent classification is not feasible. **WS-IV waters** are generally in moderately to highly developed watersheds or Protected Areas. **NSW waters** are nutrient sensitive waters and receive this supplemental classification because they are in need of additional nutrient management due to excessive growth of microscopic or macroscopic vegetation. In general, management strategies for point and nonpoint source pollution control require there be no increase in nutrients over background levels.

No waters classified as **High Quality Waters (HQW)**, **Water Supplies (WS-I or WS-II)** or **Outstanding Resource Waters (ORW)** occur within 1.6 km (1.0 mi) of the project study area.

2. Physical Characteristics of Surface Waters

Prong Alamance Creek in the vicinity of SR 3143 is approximately 20 to 30 feet wide (6 to 9 meters) and ranges in depth from 1 to 3 feet (0.3 to 0.9 meters). Streambed substrate consists of silt, gravel, cobble, rip-rap, and boulders. The bed and bed and bank are well defined. On the day of the site visit, flow was moderate and water clarity was poor because of suspended sedimentation.

3. Water Quality

This section describes the quality of the water resources within the project area. Potential sediment loads and toxin concentrations of these waters from both point sources and nonpoint sources are evaluated. Water quality assessments are made based on published resource information and existing general watershed characteristics. These data provide insight into the value of water resources within the project area to meet human needs and to provide habitat for aquatic organisms.

There are no registered point source dischargers within the project vicinity. However, on the day of the site visit a housing development was being constructed northeast of the project vicinity.

Despite erosion control devices, mud and silt were reaching the stream. As a result, the water in the creek was heavily silted.

4. Benthic Macroinvertebrate Ambient Network

The Basinwide Monitoring Program, managed by the DWQ, is part of an ongoing ambient water quality-monitoring program that addresses long-term trends in water quality. The program monitors ambient water quality by sampling at fixed sites for selected benthic macroinvertebrates organisms, which are sensitive to water quality conditions. Samples are evaluated on the number of taxa present of intolerant groups [Ephemeroptera, Plecoptera, Trichoptera (EPT)] and a taxa richness value (EPT S) is calculated. A biotic index value is also calculated for the sample that summarizes tolerance data for all species in each collection. The two rankings are given equal weight in final site classification. The biotic index and taxa richness values primarily reflect the influence of chemical pollutants. The major physical pollutant, sediment, is poorly assessed by a taxa richness analysis. Different criteria have been developed for different ecoregions (mountains, piedmont, and coastal plain) within North Carolina. **There are no benthic monitoring stations on Prong Alamance Creek in or above the project area.**

5. Summary of Anticipated Impacts to Water Resources

Impacts to water resources in the project area are likely to result from activities associated with project construction. Activities likely to result in impacts are clearing and grubbing on streambanks, riparian canopy removal, instream construction, fertilizers and pesticides used in revegetation, and pavement installation. The following impacts to surface water resources are likely to result from the above mentioned construction activities.

- Increased sedimentation and siltation downstream of the crossing and increased erosion in the project area.
- Alteration of stream discharge due to silt loading and changes in surface and groundwater drainage patterns.
- Changes in light incidence and water clarity due to increased sedimentation and vegetation removal.
- Changes in and destabilization of water temperature due to vegetation removal.
- Alteration of water levels and flows due to interruptions and/or additions to surface and ground water flow from construction.
- Increased nutrient loading during construction via runoff from exposed areas.
- Increased concentrations of toxic compounds in roadway runoff.
- Increased potential for release of toxic compounds such as fuel and oil from construction equipment and other vehicles.

In order to minimize potential impacts to water resources in the project area, NCDOT's Best Management Practices for the Protection of Surface Waters will be strictly enforced during the construction phase of the project. Limiting instream activities and revegetating stream banks immediately following the completion of grading will further reduce impacts.

D. BIOTIC RESOURCES

Biotic resources include terrestrial and aquatic communities. This section describes the biotic communities encountered in the project area, as well as the relationships between fauna and flora within these communities. The composition and distribution of biotic communities throughout the project area are reflective of topography, soils, hydrology, and past and present land uses. Descriptions of the terrestrial systems are presented in the context of plant community classifications. These classifications

follow Schafale and Weakley (1990) where possible. Representative animal species that are likely to occur in these habitats (based on published range distributions) are also cited.

Scientific nomenclature and common names (when applicable) are provided for each animal and plant species described. Subsequent references to the same organism refer to the common name only. Fauna observed during the site visit are denoted in the text with an asterisk (*).

1. Biotic Communities

Biotic communities include terrestrial and aquatic elements. Much of the flora and fauna described from biotic communities use resources from different communities, making boundaries between contiguous communities difficult to define. There are two terrestrial communities located in the project area. These communities are discussed below.

2. Maintained/Agricultural Community

This community is located on both sides of SR 3143 and the southwestern quadrant. It will be impacted by the bridge replacement. Because of harvesting, mowing, and the use of herbicides this community is kept in a constant state of early succession. The dominant species in this community are fescue (*Festuca* sp.), thistle (*Cirsium* sp.), and wild garlic (*Allium* sp.)

3. Bottomland Hardwood Community

The bottomland hardwood community is composed of several tree species; primarily yellow popular (*Liriodendron tulipifera*) and sweet gum (*Liquidambar styraciflua*). Shrub, herbaceous, and vine species found here include Chinese privet (*Ligustrum* sp.), Japanese honeysuckle (*Lonicera japonica*), blackberry (*Rubus* sp.), dog fennel (*Eupatorium capillifolium*), and multiflora rose (*Rosa multiflora*).

4. Aquatic Community

This community is contained in UT to Little Alamance Creek, a perennial stream. Aquatic insects typically found in this type of community include the water strider (*Gerris* sp.), crane fly (*Tipula* sp.), stream mayfly* (Ephemeroptera), netmaking caddisfly (Hydropsychae) and black-winged damselfly (*Calopteryx maculata*).

5. Wildlife

Maintained/disturbed communities adjacent to forested tracts provide rich ecotones for foraging, while the forests provide forage and cover. Common mammals and birds associated with this type of habitat are woodchuck (*Marmota monax*), least shrew (*Cryptotis parva*), southern short-tailed shrew (*Blarina carolinensis*), hispid cottonrat (*Sigmodon hispidus*), eastern cottontail rabbit (*Sylvilagus floridanus*), raccoon* (*Procyon lotor*), opossum* (*Didelphis virginiana*), ruby-crowned kinglet (*Regulus calendula*), Carolina chickadee (*Parus carolinensis*), downy woodpecker (*Picoides pubescens*), cardinal* (*Cardinalis cardinalis*), common grackle (*Quiscalus quiscula*), and white-breasted nuthatch (*Sitta carolinensis*).

6. Summary of Anticipated Impacts to Biotic Resources

Construction of the proposed project will have various impacts on the biotic resources described. Any construction related activities in or near these resources have the potential to impact biological

functions. This section quantifies and qualifies potential impacts to the natural communities within the project area in terms of the area impacted and the organisms affected. Temporary and permanent impacts are considered here as well, along with recommendations to minimize or eliminate impacts.

7. Terrestrial Impacts

Impacts to terrestrial communities will result from project construction due to right-of-way widening. Loss of the bottomland hardwood community will result from conversion of this community to maintained community in order to accommodate the increased right of way width. Table 1 summarizes potential losses to these communities, resulting from project construction. Calculated impacts to terrestrial communities reflect the relative abundance of each community present in the study area. Estimated impacts are derived based on the project lengths described in Section 1.1, and the entire proposed right of way width of 80 feet (24 meters) for the bridge replacement. However, project construction often does not require the entire right of way; therefore, actual impacts may be considerably less.

Table 1. Estimated area impacts to terrestrial communities.

Community	Impacted Area
Maintained Roadside/Agricultural	1.2 ac (0.5 ha)
Bottomland Hardwood	0.7 ac (0.3 ha)
Total Impacts	1.9 ac (0.8 ha)

8. Aquatic Impacts

Impacts to the aquatic community of Prong Alamance Creek will result from the replacement of Bridge No. 359. Impacts are likely to result from the physical disturbance of aquatic habitats (i.e. substrate and water quality). Disturbance of aquatic habitats has a detrimental effect on aquatic community composition by reducing species diversity and the overall quality of aquatic habitats. Physical alterations to aquatic habitats can result in the following impacts to aquatic communities.

- Inhibition of plant growth.
- Algal blooms resulting from increased nutrient concentrations.
- Loss of benthic macroinvertebrates through scouring resulting from an increased sediment load.

Strict adherence to BMP's will minimize impacts to aquatic communities. Installing culverts below the grade of the streambed will allow the stream to fill in with a natural substrate, emulating the existing benthic habitat.

E. JURISDICTIONAL TOPICS

This section provides inventories and impact analyses pertinent to two significant regulatory issues: Waters of the United States and rare and protected species. These issues retain particular significance because of federal and state mandates that regulate their protection. This section deals specifically with the impact analyses required to satisfy regulatory authority prior to project construction.

1. Waters of the United States

Surface waters and wetlands fall under the broad category of "Waters of the United States" (Waters of the U.S.), as defined in Section 33 of the Code of Federal Register (CRF) Part 328.3. Any action that proposes to dredge or place fill material into surface waters or wetlands falls under the jurisdiction of the U.S. Army Corps of Engineers (USACE) under Section 404 of the Clean Water Act (33 U.S.C. 1344). Surface waters include all standing or flowing waters which have commercial or recreational value to the public. Wetlands are identified based on the presence of hydric soils, hydrophytic vegetation, and saturated or flooded conditions during all or part of the growing season.

2. Characteristics of Wetlands and Surface Waters

Criteria to delineate jurisdictional wetlands include evidence of hydric soils, hydrophytic vegetation, and hydrology. **There are no wetlands in the project area.**

Impacts to jurisdictional surface waters are calculated based on the linear feet of the stream that are located within the proposed right of way. A length of 80 feet (24 meters) of Prong Alamance Creek and 0.06 ac (0.02 ha) of streambed may be impacted by the proposed bridge replacement. Physical aspects of surface waters are described in Section 2.3.2.

3. Permits

Impacts to jurisdictional surface waters are anticipated from the proposed project. As a result, construction activities will require permits and certifications from various regulatory agencies in charge of protecting the water quality of public water resources

A Nationwide Permit 33 CFR 330.5(a) (23) is likely to be applicable for all impacts to Waters of the U.S. resulting from the proposed project. This permit authorizes activities undertaken, assisted, authorized, regulated, funded or financed in whole, or part, by another Federal agency or department where that agency or department has determined, (pursuant to the council on environmental quality regulation for implementing the procedural provisions of the National Environmental Policy Act), that:

- (1) The activity, work, or discharge is categorically excluded from environmental documentation because it is included within a category of actions which neither individually nor cumulatively have a significant effect on the human environment, and;
- (2) The office of the Chief of Engineers has been furnished notice of the agency' or department's application for the categorical exclusion and concurs with that determination.

Section 401 of the Clean Water Act requires that the state issue or deny water certification for any federally permitted or licensed activity that may result in a discharge to Waters of the U.S. Section 401 Certification allows surface waters to be temporarily impacted for the duration of the construction or other land manipulation. However, since this project will result in less than 0.1 acre of surface water impacts, a 401 Water Quality Certification is not required from the DWQ.

4. Bridge Demolition

Bridge No. 359, constructed in 1950, carries SR 3143 over a Prong Alamance Creek in Guilford County. The bridge is 26 feet (8 meters) long and 23 feet (7 meters) wide. The superstructure consists of a timber deck on steel I-beams. The substructure end bents are composed of timber caps and piles vertical. Removal of the superstructure and the substructure will not create any temporary fill into Waters of the U.S. Although removal of the substructure may create some disturbance in the streambed,

conditions in the stream will not raise sediment concerns, therefore a turbidity curtain is not recommended.

5. Avoidance, Minimization, Mitigation

The USACE has adopted through the Council on Environmental Quality (CEQ) a wetland mitigation policy which embraces the concept of "no net loss of wetlands" and sequencing. The purpose of this policy is to restore and maintain the chemical, biological and physical integrity of Waters of the U.S., specifically wetlands. Mitigation of wetland impacts has been defined by the CEQ to include: avoiding impacts (to wetlands), minimizing impacts, rectifying impacts, reducing impacts over time and compensating for impacts (40 CFR 1508.20). Each of these three aspects (avoidance, minimization and compensatory mitigation) must be considered sequentially.

Avoidance mitigation examines all appropriate and practicable possibilities of averting impacts to Waters of the U.S.. According to a 1990 Memorandum of Agreement (MOA) between the Environmental Protection Agency (EPA) and the USACE, in determining "appropriate and practicable" measures to offset unavoidable impacts, such measures should be appropriate to the scope and degree of those impacts and practicable in terms of cost, existing technology and logistics in light of overall project purposes. Avoidance of impacts results by the implementation of an offsite detour, preventing impacts from a temporary detour.

Minimization includes the examination of appropriate and practicable steps to reduce the adverse impacts to Waters of the U.S.. Implementation of these steps will be required through project modifications and permit conditions. Minimization typically focuses on decreasing the footprint of the proposed project through the reduction to median widths, right-of-way widths, fill slopes and/or road shoulder widths. In order to minimize impacts from the replacement of bridge No. 227, steeper slopes and guardrails will be utilized to lessen the footprint of the project.

Compensatory mitigation is not normally considered until anticipated impacts to Waters of the U.S. have been avoided and minimized to the maximum extent possible. It is recognized that "no net loss of wetlands" functions and values may not be achieved in each and every permit action. Appropriate and practicable compensatory mitigation is required for unavoidable adverse impacts that remain after all appropriate and practicable minimization has been required. Compensatory actions often include restoration, creation and enhancement of Waters of the U.S., specifically wetlands. Such actions should be undertaken in areas adjacent to or contiguous to the discharge site.

Projects authorized under Nationwide Permits that result in the fill or alteration of:

- More than 0.1 acre (0.04 ha) may require compensatory mitigation,
- At least 1.0 acre (0.40 ha) of wetlands will require compensatory mitigation, and/or
- At least 150 linear feet (45.7 meters) of streams will require compensatory mitigation.

The impacts from this project do not meet the minimum mitigation threshold. **Therefore, no mitigation requirement is anticipated.** However, final permit/mitigation decisions rest with the USACE.

F. RARE AND PROTECTED SPECIES

Some populations of fauna and flora have been in, or are in, the process of decline either due to natural forces or their inability to exist with human development. Federal law (under the provisions of the Endangered Species Act of 1973, as amended) requires that any action, likely to adversely affect a species classified as federally-protected, be subject to review by the United States Fish and Wildlife Service (USFWS). Other species may receive additional protection under separate state laws.

1. Federally-Protected Species

Plants and animals with federal classifications of Endangered (E), Threatened (T), Proposed Endangered (PE), and Proposed Threatened (PT) are protected under the provisions of Section 7 and Section 9 of the Endangered Species Act of 1973, as amended. As of March 7, 2002, the USFWS lists one federally protected species for Guilford County. The bald eagle (Haliaeetus leucocephalus) is currently listed as threatened (likely to become endangered in the foreseeable future throughout all or a significant portion of its range). However, this species has been proposed for delisting due to its population increase since the original listing in 1967. The following is a brief description of the characteristics and habitat requirements for this species.

Haliaeetus leucocephalus (bald eagle) **Threatened**

Animal Family: Accipitridae

Date Listed: 3/11/67

Distribution in N.C.: Anson, Beaufort, Brunswick, Carteret, Chatham, Chowan, Craven, Dare, Durham, Guilford, Hyde, Montgomery, New Hanover, Northhampton, Perquimans, Richmond, Stanley, Vance, Wake, Washington.

Adult bald eagles can be identified by their large white head and short white tail. The body plumage is dark-brown to chocolate-brown in color. In flight bald eagles can be identified by their flat wing soar.

Eagle nests are found in close proximity to water (within a half mile) with a clear flight path to the water, in the largest living tree in an area, and having an open view of the surrounding land. Human disturbance can cause an eagle to abandon otherwise suitable habitat. The breeding season for the bald eagle begins in December or January. Fish are the major food source for bald eagles. Other sources include coots, herons, and wounded ducks. Food may be live or carrion.

*This site was surveyed on March 14, 2001 by NCDOT biologists who found no suitable habitat. In addition, a March 9, 2001 review of the NCNHP database of rare species and unique habitats revealed no occurrence of federally protected species within one mile (1.6 km) the project study area. Therefore, a **Biological Conclusion of "No Effect"** has been issued for the bald eagle, i.e. there will be no impacts to these species during construction of the project.*

2. Federal Species of Concern and State Listed Species

There is one Federal Species of Concern (FSC) listed by the USFWS for Guilford County. Federal species of concern are not afforded federal protection under the Endangered Species Act of 1973, as amended, and are not subject to any of its provisions, including Section 7, until they are formally proposed or listed as Threatened or Endangered. However, the status of these species is subject to change, and so should be included for consideration. A FSC is defined as a species that is under

consideration for listing for which there is insufficient information to support listing. In addition, organisms which are listed as Endangered (E), Threatened (T), or Special Concern (SC) by the North Carolina Natural Heritage Program list of Rare Plant and Animal Species are afforded state protection under the NC State Endangered Species Act and the NC Plant Protection and Conservation Act of 1979, as amended.

The only FSC listed for Guilford County is the Carolina darter (*Etheostoma collis lepidinion*). The NC status for this species is SC. This is a Special Concern species, which requires monitoring but may be taken or collected and sold under regulations adopted under the provisions of Article 25 of Chapter 113 of the General Statutes (animals) and the Plant Protection and Conservation Act (plants). UT to Little Alamance Creek may provide suitable habitat for this darter. However, a March 9, 2001 review of the NCNHP database of rare species and unique habitats revealed no occurrence of FSC species within one mile (1.6 km) the project study area.

VI. CULTURAL RESOURCES

A. Compliance Guidelines

This project is subject to compliance with Section 106 of the National Historic Preservation Act of 1966, as amended, implemented by the Advisory Council on Historic Preservation's Regulations for Compliance with Section 106, codified at Title 36 CFR Part 800. Section 106 requires Federal agencies to take into account the effect of their undertakings (federally funded, licensed, or permitted) on properties included in or eligible for inclusion in the National Register of Historic Places and afford the Advisory Council a reasonable opportunity to comment on such undertakings.

B. Historic Architecture

In a memorandum dated April 12, 2000 the SHPO stated that "we are aware of no historic structures located within the area of potential effect". SHPO recommended that no historical survey be conducted for this project. A copy of the memorandum is included in the Appendix.

C. Archaeology

The State Historic Preservation Office (SHPO), in a memorandum dated April 12, 2000 stated that "it is unlikely that B-3651 will affect significant archeological resources, so no survey is recommended". A copy of the SHPO memorandum is included in the Appendix.

VII. ENVIRONMENTAL EFFECTS

The project is expected to have an overall positive impact. Replacement of an inadequate bridge will result in safer traffic operations.

The project is considered to be a Federal "Categorical Exclusion" due to its limited scope and lack of significant environmental consequences.

The bridge replacement will not have an adverse effect on the quality of the human or natural environment with the use of the current North Carolina Department of Transportation standards and specifications.

The project is not in conflict with any plan, existing land use, or zoning regulation. No change in land use is expected to result from the construction of the project.

No adverse impact on families or communities is anticipated. Right of way acquisition will be limited. No relocatees are expected with implementation of the proposed alternative.

No adverse effect on public facilities or services is expected. The project is not expected to adversely affect social, economic, or religious opportunities in the area.

The proposed project will not require right of way acquisition or easement from any land protected under Section 4(f) of the Department of Transportation Act of 1966.

This project has been coordinated with the United States Natural Resources Conservation Service. The Farmland Protection Policy Act requires all federal agencies or their representatives to consider the potential impact to prime farmland of all land acquisition and construction projects. Right of way acquisition will be minimal and there are no soils classified as prime, unique, or having state or local importance in the vicinity of the project. Therefore, the project will not involve the direct conversion of farmland acreage within these classifications.

This project is an air quality "neutral" project, so it is not required to be included in the regional emissions analysis and a project level CO analysis is not required.

Noise levels could increase during construction but will be temporary. If vegetation is disposed of by burning, all burning shall be done in accordance with applicable local laws and regulations of the North Carolina State Implementation Plan (SIP) for air quality in compliance with 15 NCAC 2D.0520. This evaluation completes the assessment requirements for highway traffic noise of Title 23, Code of Federal Regulation (CFR), Part 772 and for air quality (1990 Clean Air Act Amendments and the National Environmental Policy Act) and no additional reports are required.

An examination of records at the North Carolina Department of Environment and Natural Resources, Division of Water Quality, Groundwater Section and the North Carolina Department of Human Resources, Solid Waste Management Section revealed no underground storage tanks or hazardous waste sites in the project area.

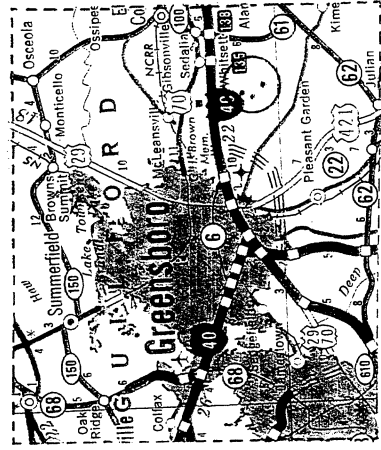
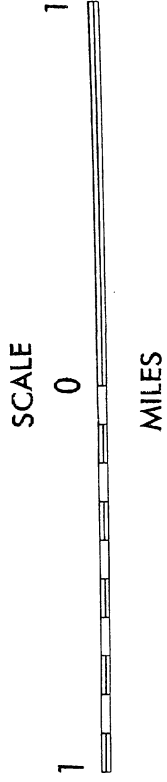
Guilford County is a participant in the National Flood Insurance Regular Program. There are no practical alternatives to crossing the floodplain area. Any shift in alignment will result in a crossing of about the same magnitude. All reasonable measures will be taken to minimize any possible harm. The project is not anticipated to increase the level and extent of upstream flood hazard. No substantial floodway modifications will be required.


On the basis of the above discussion, it is concluded that no significant adverse environmental impacts will result from implementation of the project.

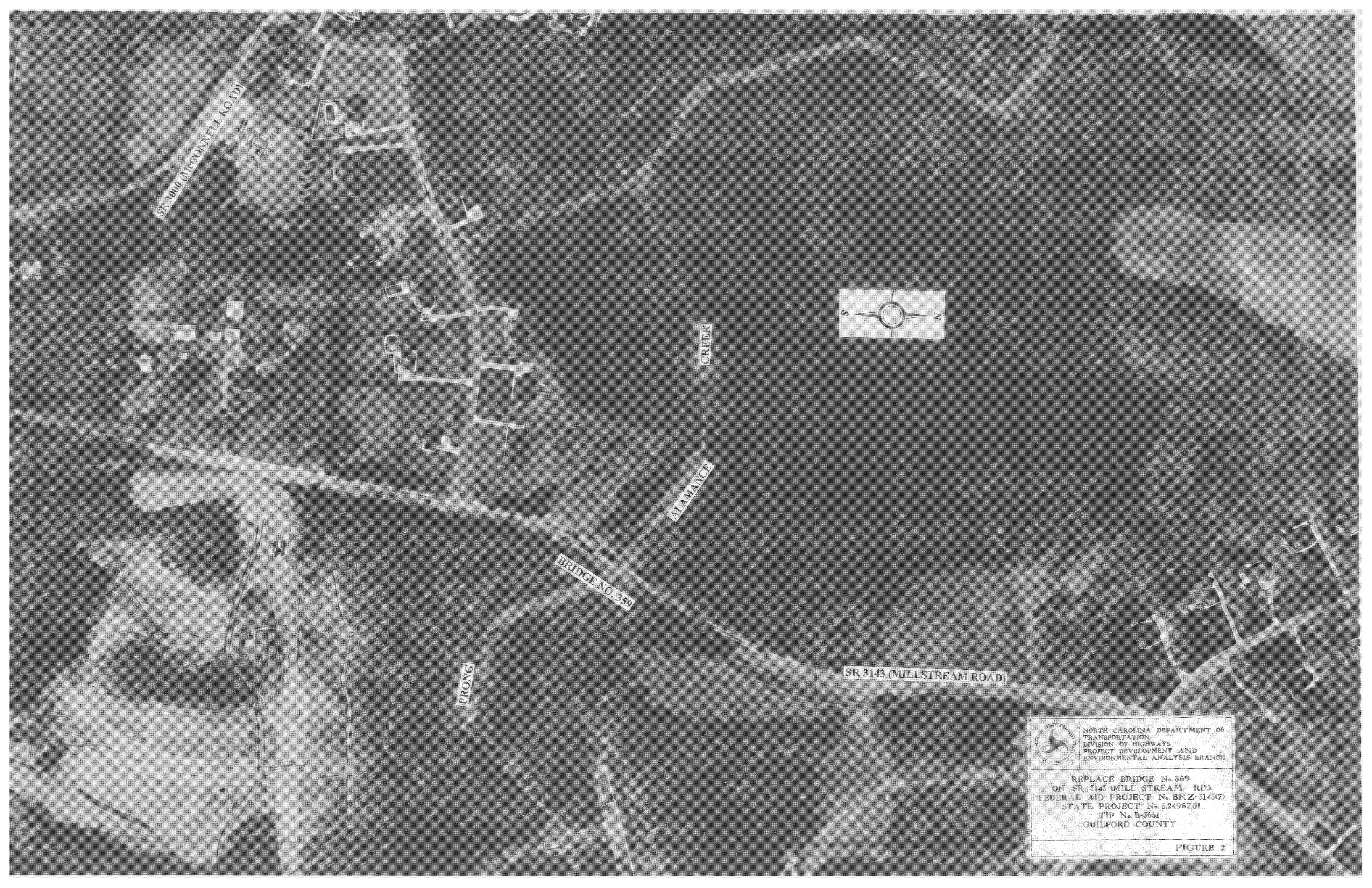
VIII. AGENCY COMMENTS

All comments from federal and state regulatory and resource agencies and local government are included in the Appendix and have been addressed in this document.

FIGURES



 <p>NORTH CAROLINA DEPARTMENT OF TRANSPORTATION PROJECT DEVELOPMENT & ENVIRONMENTAL ANALYSIS BRANCH</p>	<p>Guilford County</p> <p>Bridge #227 over Little Alamance Creek (B-3649) Bridge #250 over Big Alamance Creek (B-3650) Bridge #359 over Prong Alamance Creek (B-3651)</p>	<p>VICINITY MAP</p> <p>FIGURE 1</p>
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SR 3000 (MCCONNELL ROAD)

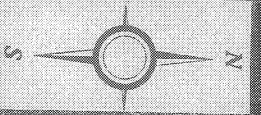
CREEK

ALAMANCE

BRIDGE NO. 359

PRONG

SR 3143 (MILLSTREAM ROAD)




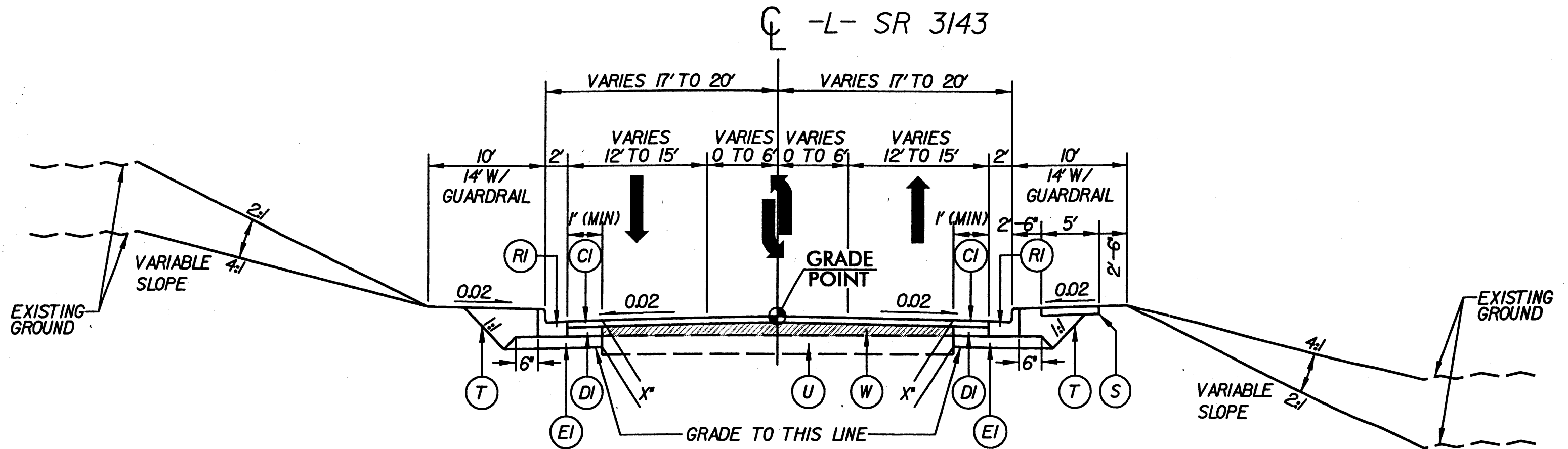
	NORTH CAROLINA DEPARTMENT OF TRANSPORTATION DIVISION OF HIGHWAYS PROJECT DEVELOPMENT AND ENVIRONMENTAL ANALYSIS BRANCH
	REPLACE BRIDGE No. 359 ON SR 3143 (MILL STREAM RD.) FEDERAL AID PROJECT No. BRZ-3143(7) STATE PROJECT No. 8.2495701 TIP No. B-3651 GUILFORD COUNTY

FIGURE 2



-L- STA 10+50.00 TO STA 13+38.00
 -L- STA 22+00.00 TO STA 25+00.00

NOTE 1: MILL NOTCH TO KEY-IN XX FROM
 -L- STA 10+50.00 TO STA 11+00.00
 -L- STA 24+50.00 TO STA 25+00.00
 (SEE DETAIL W2 THIS SHEET)


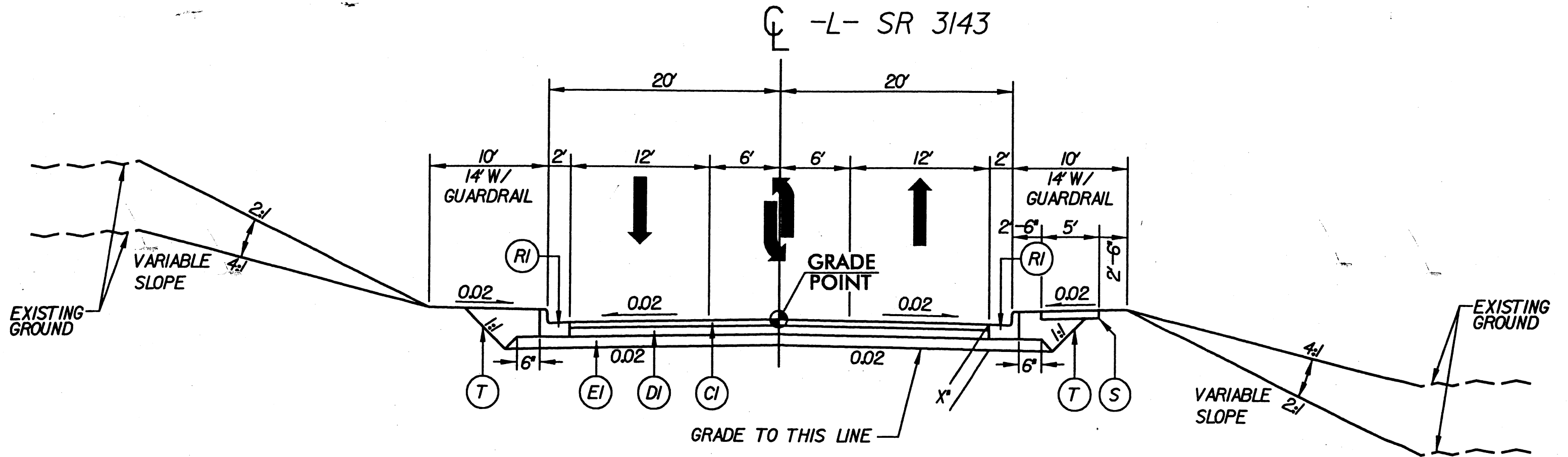

	North Carolina Department of Transportation
	Project Development & Environmental Analysis Branch
	Replace Bridge No. 359 on SR 3143 (Mill Stream Rd.)
	Federal Aid Project No. BRZ-3143(7)
	State Project No. 8.2495701
	TIP No. B-3651
	Guilford County

Figure 3A



TYPICAL SECTION NO. 2

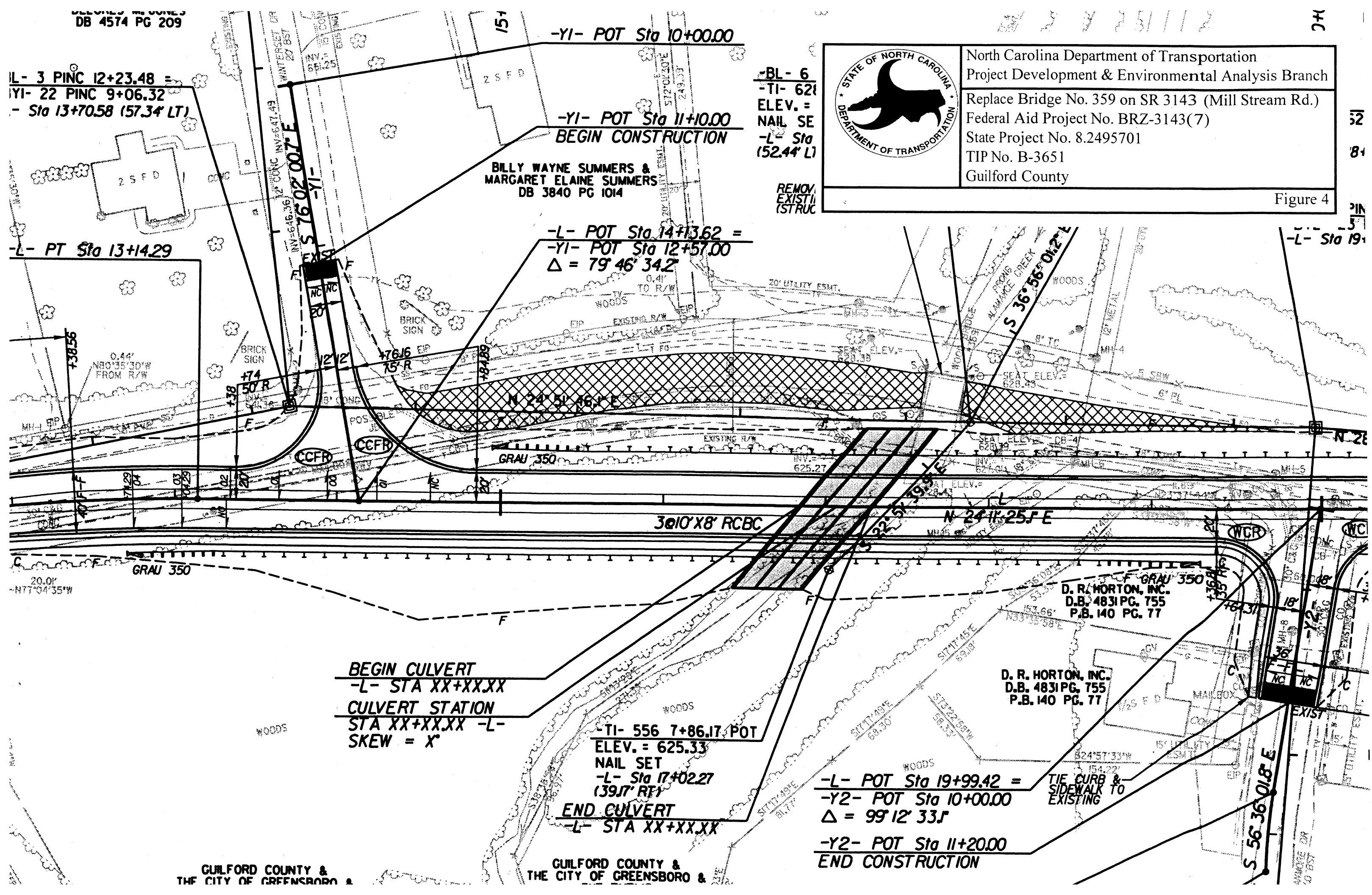
-L- STA 13+38.00 TO STA 22+00.00

	North Carolina Department of Transportation
	Project Development & Environmental Analysis Branch
	Replace Bridge No. 359 on SR 3143 (Mill Stream Rd.)
	Federal Aid Project No. BRZ-3143(7)
	State Project No. 8.2495701
	TIP No. B-3651
	Guilford County



North Carolina Department of Transportation
Project Development & Environmental Analysis Branch
Replace Bridge No. 359 on SR 3143 (Mill Stream Rd.)
Federal Aid Project No. BRZ-3143(7)
State Project No. 8.2495701
TIP No. B-3651
Guilford County

Figure 4



APPENDIX

Blakeney

State of North Carolina
Department of Environment
and Natural Resources
Division of Water Quality



James B. Hunt, Jr., Governor
Bill Holman, Secretary
Kerr T. Stevens, Director

March 3, 2000

MEMORANDUM

To: William D. Gilmore, P.E., Manager, NCDOT, Project Development & Environmental Analysis

From: John Hennessy, NC Division of Water Quality JH

Subject: Scoping comments on the proposed replacement of Bridge No. 359 over an unnamed tributary of Alamance Creek in Guilford County, State Project No. 8.2495701, TIP B-3651.

This letter is in reference to your correspondence dated January 21, 2000, in which you requested scoping comments for the referenced project. Preliminary analysis of the project reveals that the proposed bridge will span an unnamed tributary of Alamance Creek in the Cape Fear River Basin. The stream is classified as **Water Supply IV nutrient sensitive** waters. The Division of Water Quality requests that NCDOT consider the following environmental issues for the proposed project:

- A. The document should provide a detailed and itemized presentation of the proposed impacts to wetlands and streams with corresponding mapping.
- B. There should be a discussion on mitigation plans for unavoidable impacts. If mitigation is required, it is preferable to present a conceptual (if not finalized) mitigation plan with the environmental documentation. While the NCDWQ realizes that this may not always be practical, it should be noted that for projects requiring mitigation, appropriate mitigation plans will be required prior to issuance of a 401 Water Quality Certification.
- C. Review of the project reveals that no Outstanding Resource Waters, High Quality Waters, or Trout Waters will be impacted during the project implementation. However, impacts to waters classified as Water Supply II will be impacted. The DWQ requests that DOT strictly adhere to North Carolina regulations entitled "Design Standards in Sensitive Watersheds" (15A NCAC 04B .0024) throughout design and construction of the project. This would apply for any area that drains to streams having WS (Water Supply), ORW (Outstanding Resource Water), HQW (High Quality Water), SA (Shellfish Water) or Tr (Trout Water) classifications.
- D. When practical, the DWQ requests that bridges be replaced on the existing location with road closure. If a detour proves necessary, remediation measures in accordance with the NCDWQ requirements for General 401 Certification 2726/Nationwide Permit No. 33 (Temporary Construction, Access and Dewatering) must be followed.
- E. The DWQ requests that hazardous spill catch basins be installed at any bridge crossing a stream classified as HQW or WS (Water Supply). The number of catch basins installed should be determined by the design of the bridge, so that runoff would enter said basin(s) rather than flowing directly into the stream.
- F. If applicable, DOT should not install the bridge bents in the creek, to the maximum extent practicable.

- G. Wetland and stream impacts should be avoided (including sediment and erosion control structures/measures) to the maximum extent practical. If this is not possible, alternatives that minimize wetland impacts should be chosen. Mitigation for unavoidable impacts will be required by DWQ for impacts to wetlands in excess of one acre and/or to streams in excess of 150 linear feet.
- H. Borrow/waste areas should not be located in wetlands. It is likely that compensatory mitigation will be required if wetlands are impacted by waste or borrow.
- I. DWQ prefers replacement of bridges with bridges. However, if the new structure is to be a culvert, it should be countersunk to allow unimpeded fish and other aquatic organisms passage through the crossing.
- J. If foundation test borings are necessary; it should be noted in the document. Geotechnical work is approved under General 401 Certification Number 3027/Nationwide Permit No. 6 for Survey Activities.
- K. In accordance with the NCDWQ Wetlands Rules { 15A NCAC 2H.0506(b)(6) }, mitigation will be required for impacts of greater than 150 linear feet to any single perennial stream. In the event that mitigation becomes required, the mitigation plan should be designed to replace appropriate lost functions and values. In accordance with the NCDWQ Wetlands Rules { 15A NCAC 2H.0506 (h)(3) }, the Wetland Restoration Program may be available for use as stream mitigation.
- L. Sediment and erosion control measures should not be placed in wetlands.
- M. The 401 Water Quality Certification application will need to specifically address the proposed methods for stormwater management. More specifically, stormwater should not be permitted to discharge directly into the creek. Instead, stormwater should be designed to drain to a properly designed stormwater detention facility/apparatus.
- N. While the use of National Wetland Inventory (NWI) maps and soil surveys is a useful office tool, their inherent inaccuracies require that qualified personnel perform onsite wetland delineations prior to permit approval.

Thank you for requesting our input at this time. The DOT is reminded that issuance of a 401 Water Quality Certification requires that appropriate measures be instituted to ensure that water quality standards are met and designated uses are not degraded or lost. If you have any questions or require additional information, please contact John Hennessy at (919) 733.5694.

Pc: Eric Alsmeyer, Corps of Engineers
Tom McCartney, USFWS
David Cox, NCWRC
Central Files

Blatney



North Carolina Department of Cultural Resources

State Historic Preservation Office

David L. S. Brook, Administrator

RECEIVED
APR 20 2000

James B. Hunt Jr., Governor
Betty Ray McCain, Secretary

Division of Archives and History
Jeffrey J. Crow, Director

April 12, 2000

MEMORANDUM

TO: William D. Gilmore, P.E., Manager
Project Development and Environmental Analysis Branch
Division of Highways
Department of Transportation

FROM: David Brook *for David Brook*
Deputy State Historic Preservation Officer

SUBJECT: Replacement of Bridges No. 227, 250 & 359, TIP B-3649, B-3650, and B-3651, Guilford County, ER 00-8717

We regret that staff was unable to attend the February 10, 2000, scoping meeting for the above referenced project.

In terms of historic architectural resources, we are aware of no historic structures located within the area of potential effect. We recommend that no historic architectural survey be conducted for this project.

If Bridge No. 250 (B-3650) is to be replaced outside the boundaries of its existing location, please forward the information so we can evaluate the need for an archaeological survey. It is unlikely that either B-3649 or B-3651 will affect significant archaeological resources, so no survey is recommended.

Having provided this information, we look forward to receipt of either a Categorical Exclusion or Environmental Assessment which indicates how NCDOT addressed our comments.

The above comments are made pursuant to Section 106 of the National Historic Preservation Act and the Advisory Council on Historic Preservation's Regulations for Compliance with Section 106 codified at 36 CFR Part 800.

Thank you for your cooperation and consideration. If you have questions concerning the above comment, please contact Renee Gledhill-Earley, environmental review coordinator, at 919/733-4763.

cc: B. Church
T. Padgett

	Location	Mailing Address	Telephone/Fax
ADMINISTRATION	507 N. Blount St., Raleigh NC	4617 Mail Service Center, Raleigh NC 27699-4617	(919) 733-4763 • 733-8653
ARCHAEOLOGY	421 N. Blount St., Raleigh NC	4619 Mail Service Center, Raleigh NC 27699-4619	(919) 733-7342 • 715-2671
RESTORATION	515 N. Blount St., Raleigh NC	4613 Mail Service Center, Raleigh NC 27699-4613	(919) 733-6547 • 715-4801
SURVEY & PLANNING	515 N. Blount St., Raleigh NC	4618 Mail Service Center, Raleigh NC 27699-4618	(919) 733-6545 • 715-4801

**GUILFORD COUNTY SCHOOLS**

To: Edwin Peters
From: Jeff Harris *J. Harris*
Date: 12/07/01
Re: Requested Bridge Data

The purpose of this memo is to respond with the impacts on school bus routing in regards to three specific bridge projects. Information requested relates to bridges on McConnell Rd, Millstream Rd and Wild Turkey Rd. Transportation routing software, TIMS, was used to compile data concerning the number of crossings by buses daily and alternate routes available. Data and information regarding the impact on bus runs is described below separated by bridge location.

Wild Turkey Road

Data indicates school buses do not cross the single lane bridge due to the 9-ton max weight for vehicles.

Millstream Rd – Bridge located between McConnell Road and Mt Hope Church Road

Data indicates school buses cross this bridge 13 times daily. Due to the bridge not being closed during the project, little impact is anticipated on bus runs.

McConnell Rd – Bridge located between Millpoint Road and Keesee Road

Resulting in the proposed closing of this bridge for the project, 12 bus runs will require detouring. The detour will be of minor impact on eight of the runs, causing insignificant or no time/mileage increase. The remaining four runs, two in the morning and two in the evening, use McConnell Road as an access to bus stops in the surrounding area. The greatest concern is bus stops that are on the segment from the McConnell Road Bridge south to Keesee Road, stops are located at the addresses 4417 and 4461 McConnell Road. Closing the bridge will cause a dead end segment; a bus turnaround location will be required at or after 4417 McConnell Road. The other alternative is to move the stop locations for these students to another location not affected by the closed segment.

Please include in your project documentation, the Guilford County Schools Transportation Department is requesting at least a two-week notice before beginning the McConnell Road project. This will allow our staff time to change the path of travel of bus runs and to make adjustments for the stops affected on the closed segment.

B U I L D I N G F U T U R E S

131 Franklin Boulevard Greensboro, NC 27401
Phone (336) 370-8920 Fax (336) 370-8930



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

MICHAEL F. EASLEY
GOVERNOR

LYNDO TIPPETT
SECRETARY

March 25, 2004

Mr. William D. Gilmore, P.E.
EEP Transition Manager
Ecosystem Enhancement Program
1652 Mail Service Center
Raleigh, NC 27699-1652

Dear Sir:

Subject: Replacement of Bridge No. 359 over Prong Alamance Creek on
SR 3143 (Mill Stream Road) in Guilford County, Federal Project
No. BRZ-3143 (7), State Project No. 8.2495701, WBS Element
33197.1.1, T.I.P. No. B-3651.

The purpose of this letter is to request that the North Carolina Ecosystem Enhancement Program (EEP) provide confirmation that the EEP is willing to provide compensatory mitigation for the project in accordance with the Memorandum of Agreement (MOA) signed July 22, 2003 by the USACE, the NCDENR and the NCDOT. This project was included on the "Transition List" for the MOA.

The North Carolina Department of Transportation (NCDOT) proposes to replace Bridge No. 359 over Prong Alamance Creek. The project involves replacing Bridge No. 359 on a new location east of the existing bridge with a triple barrel 10-foot wide by 8-foot wide reinforced concrete box culvert. There will also be a 12-inch water utility line positioned across streambed in project area. SR 3143 will be widened to accommodate two 12-foot travel lanes and on 12-foot center turn lane. Traffic will be detoured on-site using the existing structure during construction.

**RESOURCES UNDER THE JURISDICTION OF SECTION 404 AND 401 OF THE
CLEAN WATER ACT.**

We have avoided and minimized the impacts to jurisdictional resources to the greatest extent possible as described in the permit application. A copy of the permit application can be found at <http://www.ncdot.org/planning/pe/naturalunit/Applications.html>. The remaining impacts to jurisdictional resources will be compensated for by mitigation provided by the EEP program. We estimate that 200 linear feet of a jurisdictional perennial stream will be impacted.

The project is located in the Central Piedmont Physiographic Province in Guilford County in the Cape Fear River basin in Hydrological Cataloguing Unit 03030002. The stream impact will be to Prong Alamance Creek [DWQ # 16-19-3-(0.5)], a second order perennial stream. We propose to mitigate for the stream impact by using the EEP for the 200 feet of impacts.

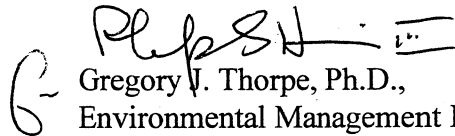
Please send the letter of confirmation to Mr. John Thomas (USACE Coordinator) at U. S. Army Corps of Engineers Raleigh Regulatory Field Office, 6508 Falls of the Neuse Road Suite 120 Raleigh, NC 27615). Mr. Thomas' FAX number (919) 876-5823. The current let date for the project is June 15, 2004 for which the let review date is April 27, 2004.

Upon receipt of the 401 Water Quality Certification from NCDWQ, NCDOT will transfer funds to EEP for buffer mitigation.

In order to satisfy regulatory assurances that mitigation will be performed; the NCDWQ requires a formal letter from EEP indicating their willingness and ability to provide the mitigation work requested by NCDOT. The NCDOT requests such a letter of confirmation be addressed to Mr. John Hennessy of NCDWQ, with copies submitted to NCDOT.

If you have any questions or need additional information please call Deanna Riffey at (919) 715-4109.

Sincerely,


Gregory J. Thorpe, Ph.D.,
Environmental Management Director

Project Development & Environmental Analysis Branch

cc:

w/attachment

Mr. John Hennessy, Division of Water Quality (2 copies)

Mr. Travis Wilson, NCWRC

Mr. Gary Jordan, USFWS

Mr. Greg Perfetti, P.E., Structure Design

w/o attachment

Mr. John Thomas USACE - Raleigh

Mr. David Franklin, USACE, Wilmington

Mr. Jay Bennett, P.E., Roadway Design

Mr. Omar Sultan, Programming and TIP

Mr. Art McMillan, P.E., Highway Design

Mr. David Chang, P.E., Hydraulics

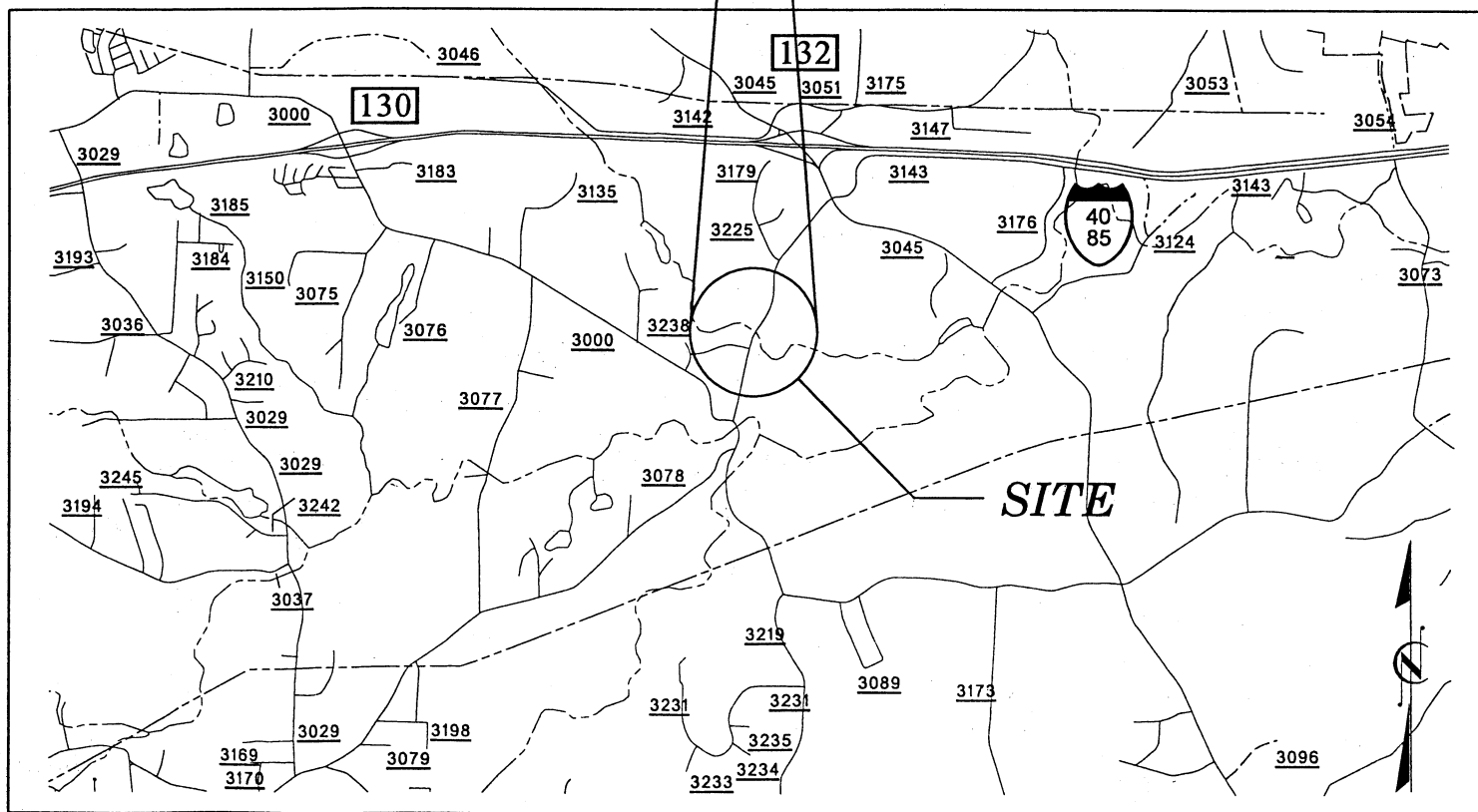
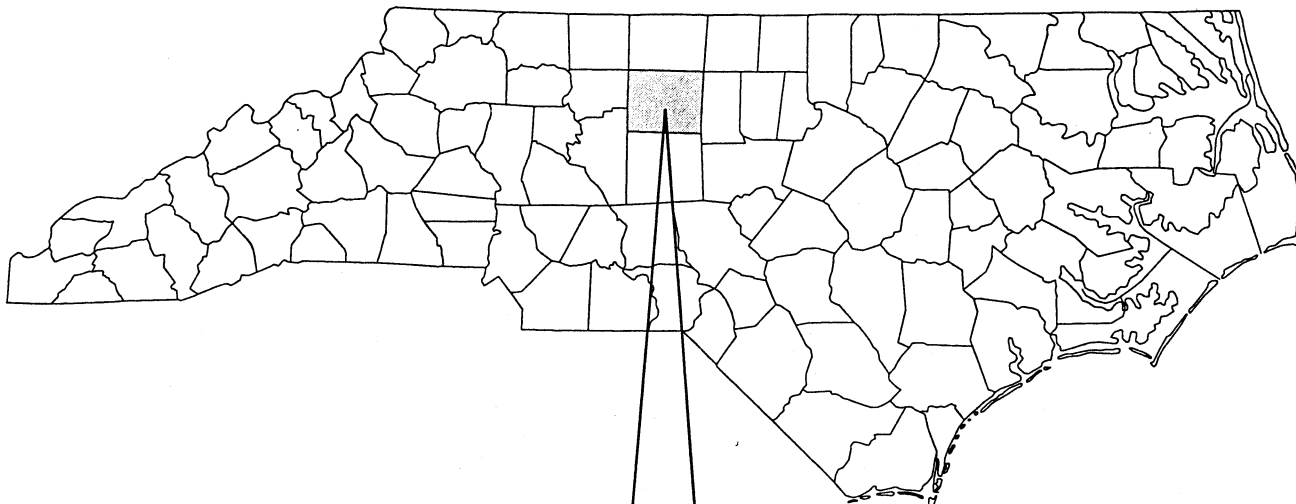
Mr. Mark Staley, Roadside Environmental

Mr. J. M. Mills, P.E.

Mr. Jerry Parker, DEO

Ms. Marie Sutton, PDEA Project Planning Engineer

NORTH CAROLINA



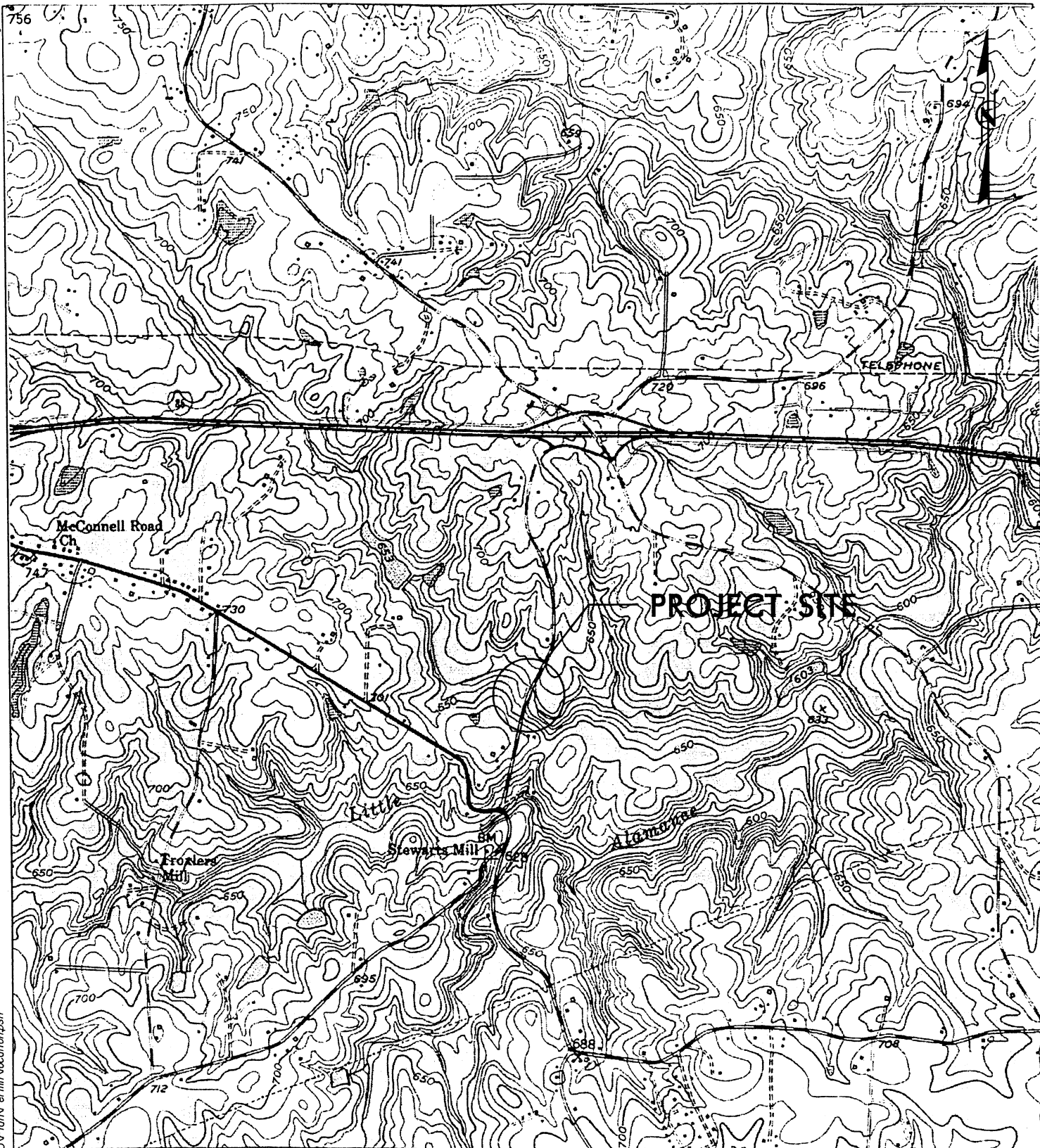
WETLAND PERMIT DRAWING VICINITY MAP B-3651

NCDOT
DIVISION OF HIGHWAYS
GUILFORD COUNTY

PROJECT: 8.2495701 (B-3651)
REPLACEMENT OF BRIDGE NO. 359
OVER PRONG ALAMANCE CREEK
ON SR 3143

SHEET 1 OF 9

6/203



**WETLAND PERMIT DRAWING
LOCATION
B-3651**

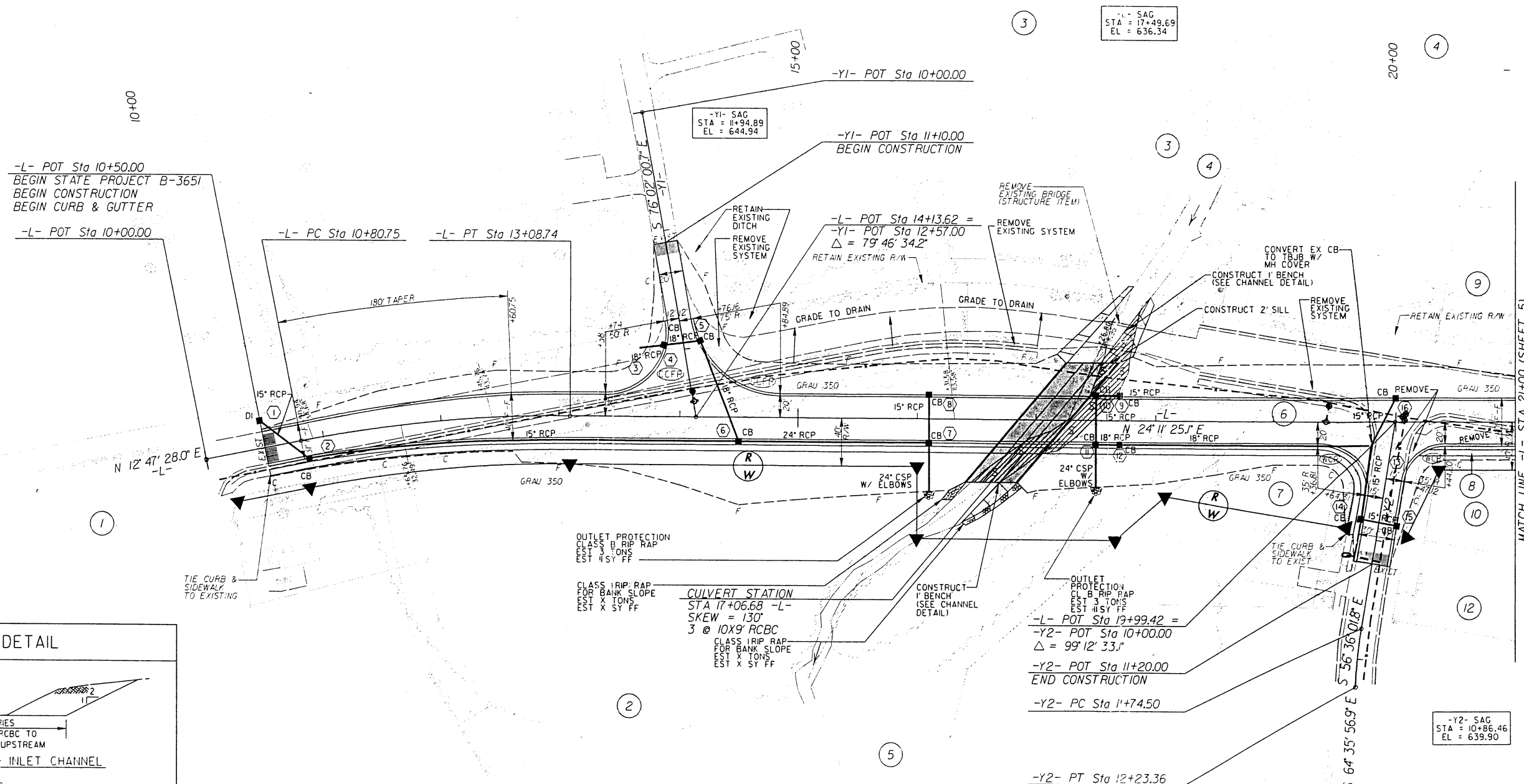
SCALE: 1" = 2000'

NCDOT
DIVISION OF HIGHWAYS
GUILFORD COUNTY

PROJECT: 8.2495701 (B-3651)
REPLACEMENT OF BRIDGE NO. 359
OVER PRONG ALAMANCE CREEK
ON SR 3143

SHEET 2 OF 9

61203



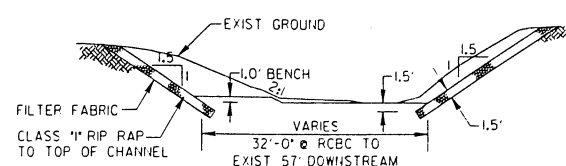
EXIST GROUND

1.0' BENCH

VARIES

32'-0" ± PCBC TO EXIST 83' UPSTREAM

TYPICAL SECTION - INLET CHANNEL



TYPICAL SECTION - OUTLET CHANNEL

• VERTICAL CURVE AND MAXIMUM GRADE DESIGN EXCEPTION

DENOTES FILL IN SURFACE WATER

SEE SHEET NO.6 FOR -L- PROFILE
SEE SHEET NO.7 FOR -Y1- AND -Y2- PROFILES
SEE SHEET NOS. C-1 THRU C- FOR CULVERT PLANS

STG 11+95.2
L = 17' 23.57' (RT)
D = 5' 00.00'
L = 227.96
T = 114.37'
R = 1145.92
SE = 0.04
RO = 120'

PI Sta 11+95.2
L = 7' 59.55' (L)
D = 16' 22.12'
L = 48.66
T = 24.47
R = 350.00
SE = EXISTING
RO = EXISTING

WINTERSET DR (-Y1-)		
1999 ADT	DHV = 11%	1500
2025 ADT	DIR = 65%	3700
	TTST = 1%	1500
	DUAL = 2%	3800

SR 3143
(-L-)

DHV = 11%
DIR = 65%
TTST = 1%
DUAL = 3%

ENGLISH

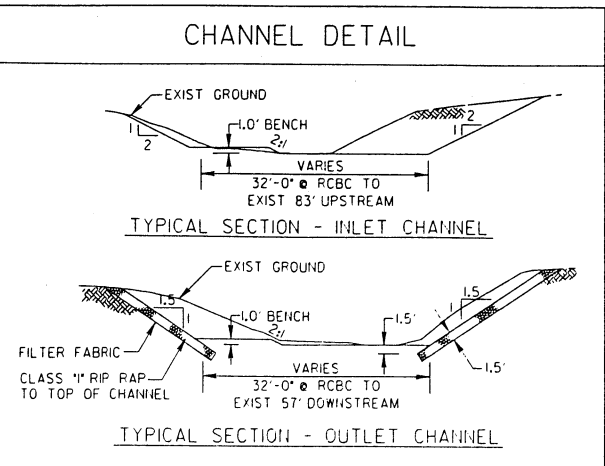
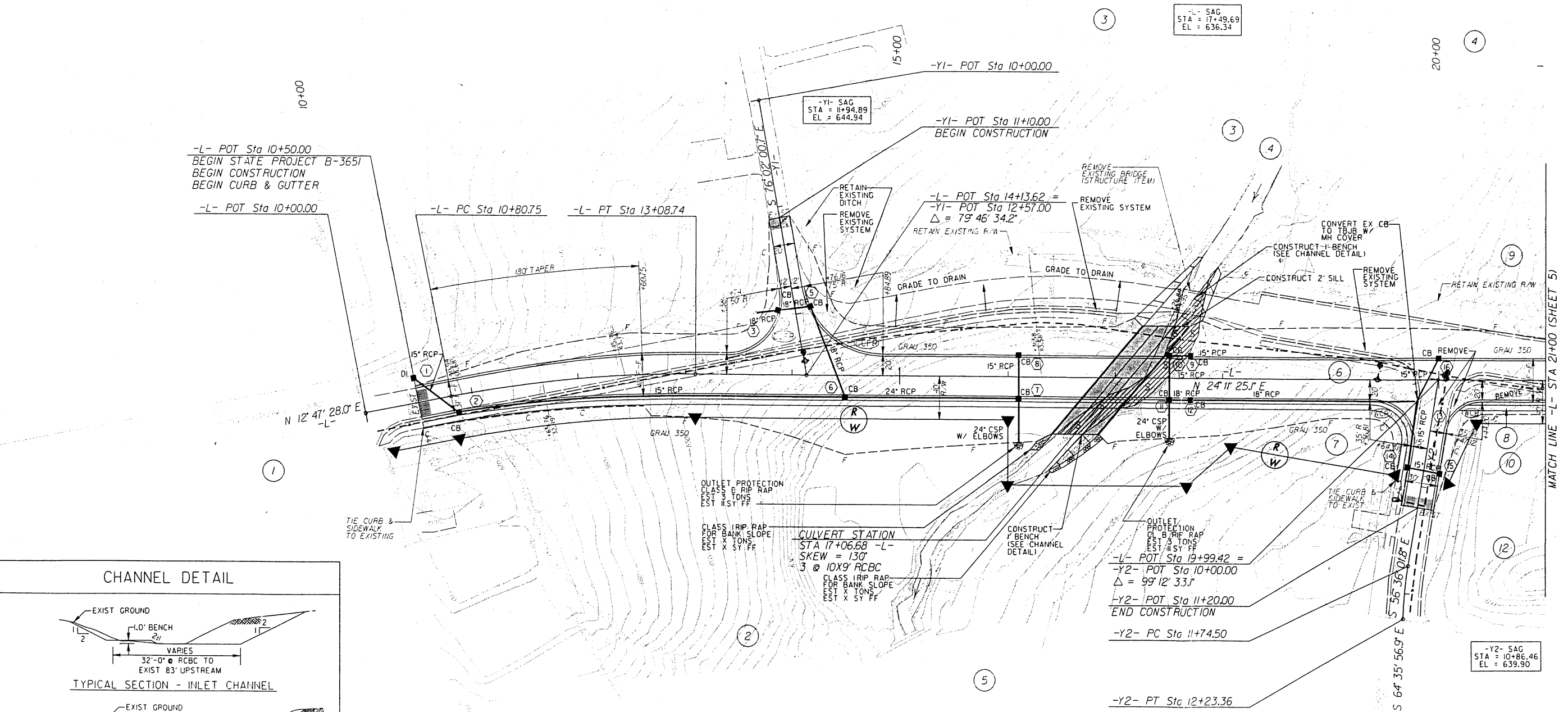
Kimley-Horn
and Associates, Inc.

P.O. BOX 33068
RALEIGH, N.C. 27636-3068

RIGHT-OF-WAY REV.
CONST. REV.

RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



** VERTICAL CURVE AND MAXIMUM GRADE DESIGN EXCEPTION

SEE SHEET NO.6 FOR -L- PROFILE
SEE SHEET NO.7 FOR -Y1- AND -Y2- PROFILES
SEE SHEET NOS. C-1 THRU C- FOR CULVERT PLANS

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3/12/2003

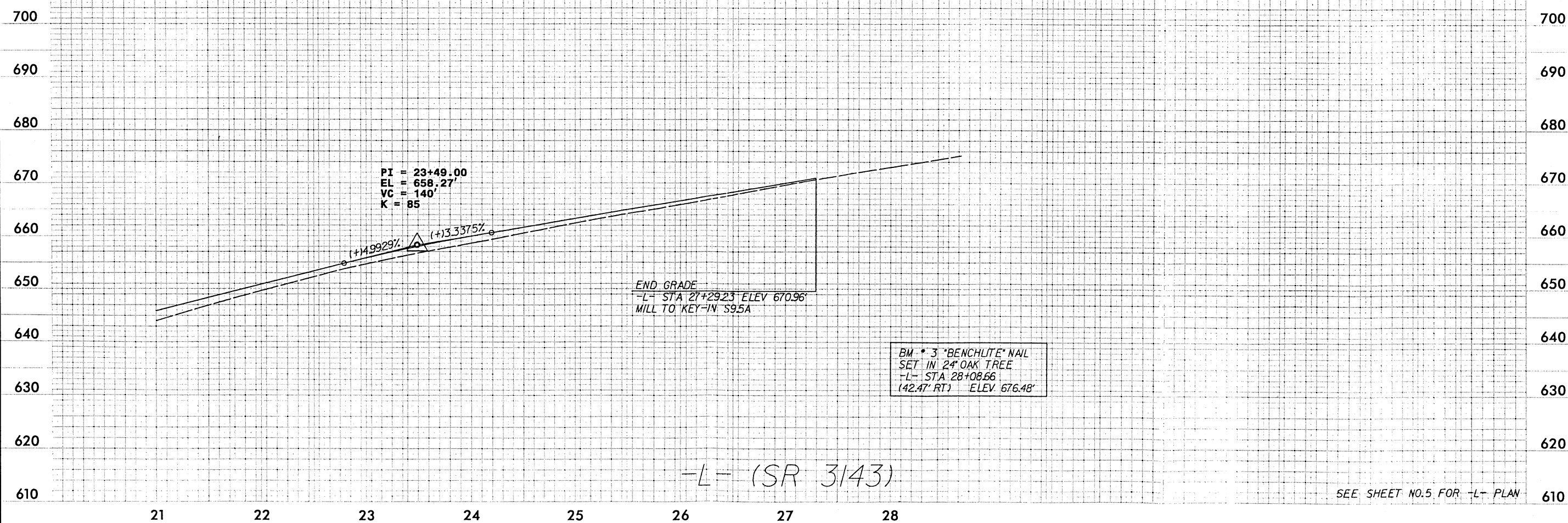
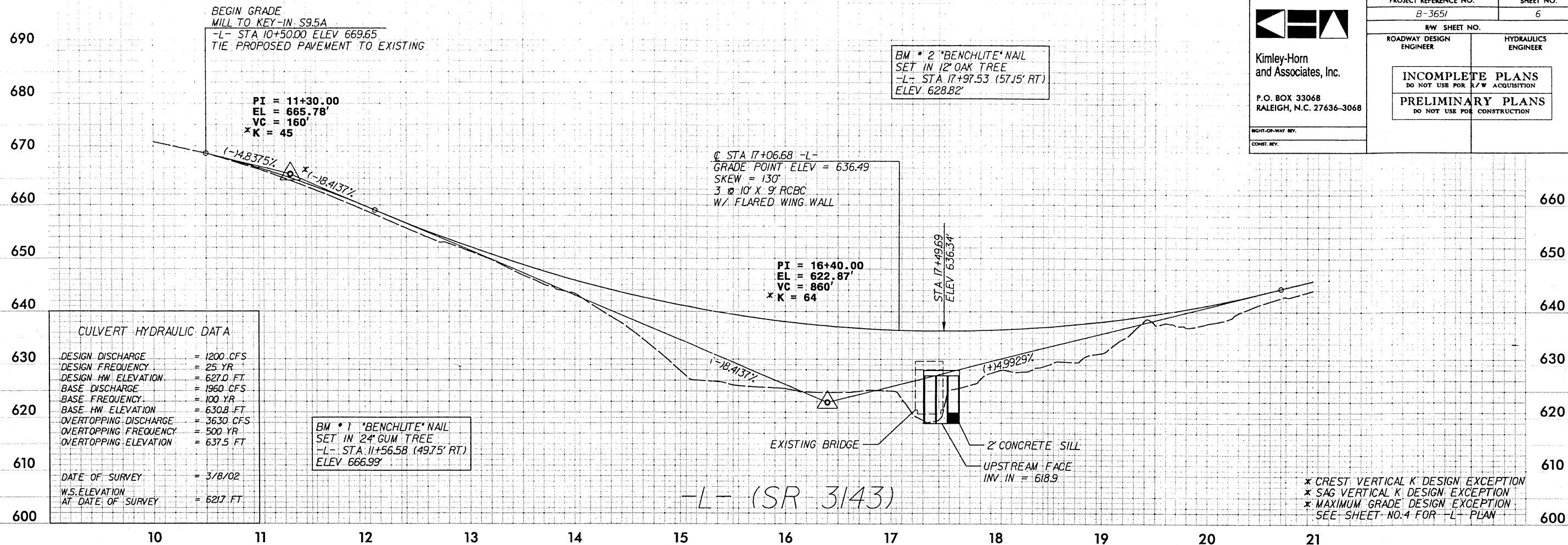


Kimley-Horn
and Associates, Inc.

P.O. BOX 33068
RALEIGH, N.C. 27636-3068

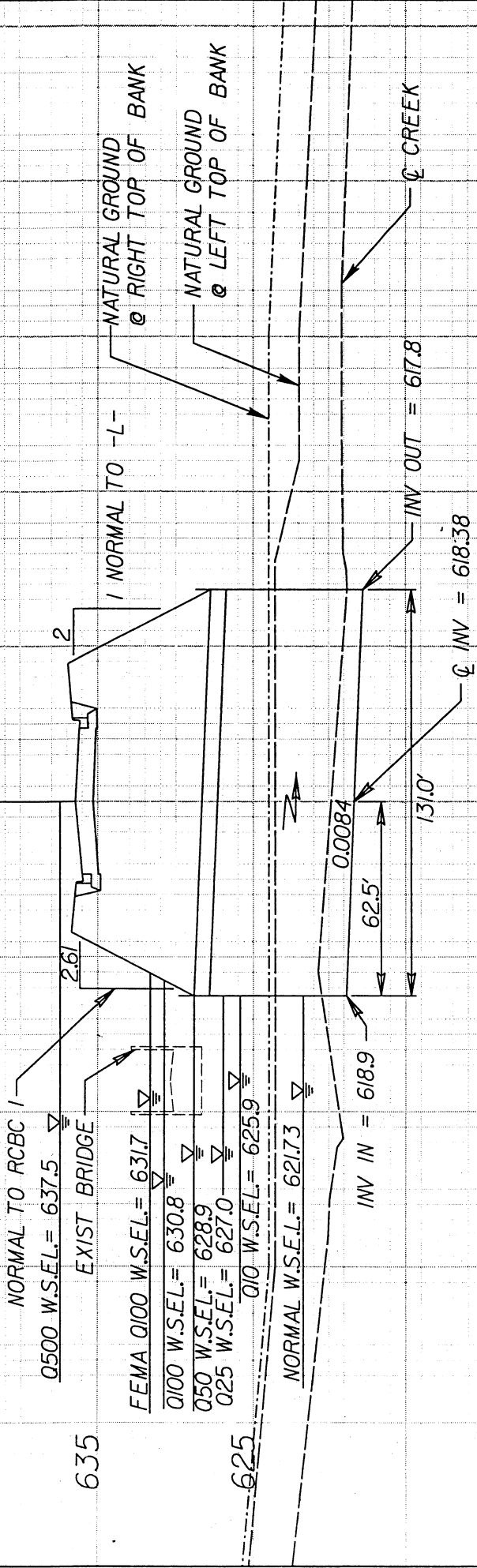
RIGHT-OF-WAY REV.
CONST. REV.

PROJECT REFERENCE NO.		SHEET NO.
B-3651		6
RW SHEET NO.		
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER	
INCOMPLETE PLANS DO NOT USE FOR A/W ACQUISITION		
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION		



-Q STA 17+07 -L-
 GRADE POINT ELEV= 636.49
 SKEW= 130'00"
 3 @ 10' x 9' RCBC'S
 W/ FLARED WING WALL

SCALE
 1" = 50' H
 1" = 10' V

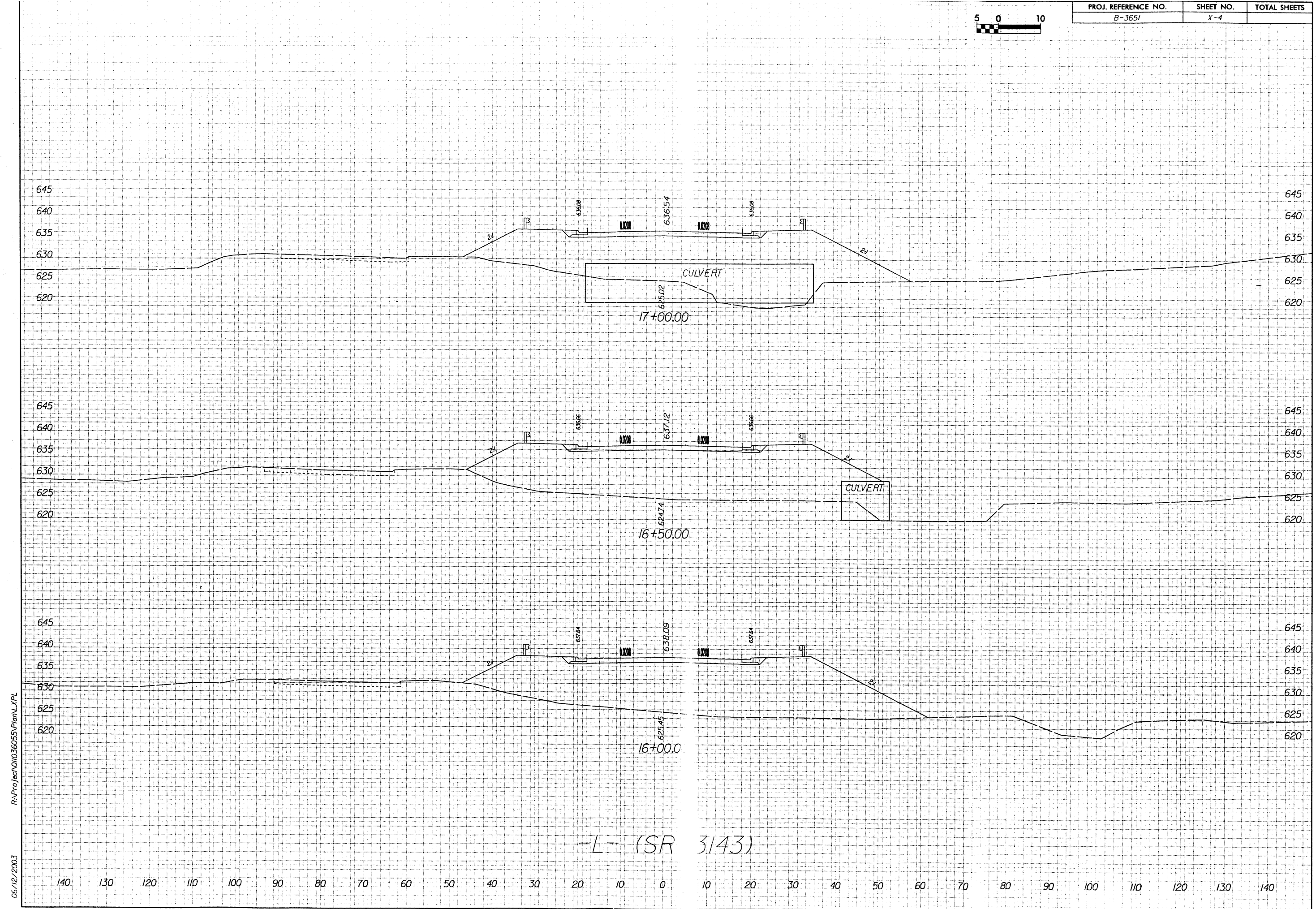
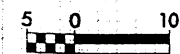


NCDOT
 DIVISION OF HIGHWAYS
 GUILFORD COUNTY

PROJECT: 8.2495701 (B-3651)
 REPLACEMENT OF BRIDGE NO. 359
 OVER PRONG ALAMANCE CREEK
 ON SR 3143

SHEET 6 OF 9 61203

WETLAND PERMIT DRAWING
 CSR PROFILE
 B-3651



-L- (SR 3143)

R:\Proj\6011036055\Plan\XPL

06/12/2003

[illegible]

NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

GUILFORD COUNTY
PROJECT 8.2495701 (B-3651)

PROPERTY OWNER

NAME AND ADDRESS

OWNER'S NAME

ADDRESS

2

**GUILFORD COUNTY AND
THE CITY OF GREENSBORO
AND THE PUBLIC**

GREENSBORO, NC 27429

3

**BENJAMIN J. WESTON AND
RUTH L. WESTON**

**4906 OLDE FOREST DR.
GREENSBORO, NC 27406**

4

**GUILFORD COUNTY, CITY
OF GREENSBORO AND THE
GENERAL PUBLIC**

GREENSBORO, NC 27429

5

**GUILFORD COUNTY AND
THE CITY OF GREENSBORO
AND THE PUBLIC**

GREENSBORO, NC 27429

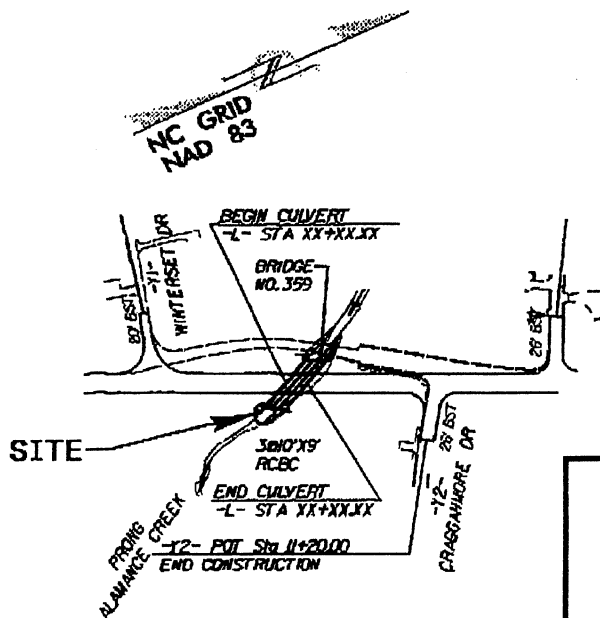
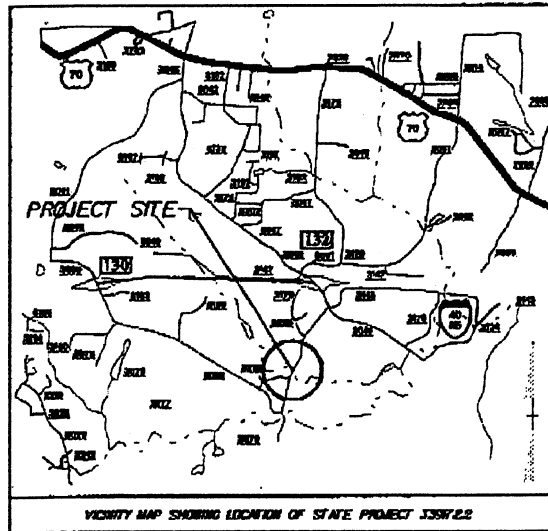
**WETLAND PERMIT DRAWING
PROPERTY OWNERS
B-3651**

NCDOT
DIVISION OF HIGHWAYS
GUILFORD COUNTY

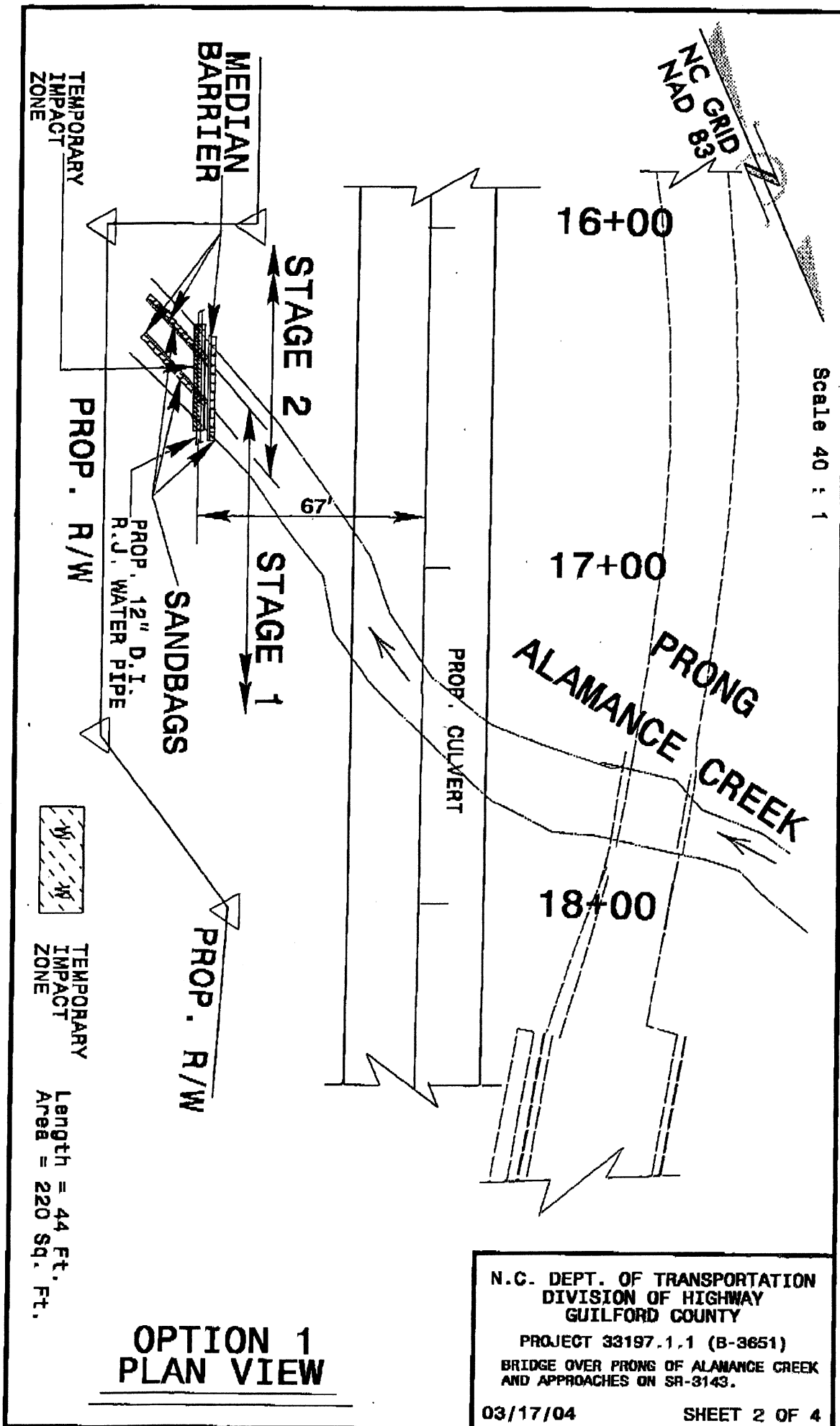
PROJECT: 8.2495701 (B-3651)
REPLACEMENT OF BRIDGE NO. 359
OVER PRONG ALAMANCE CREEK
ON SR 3143

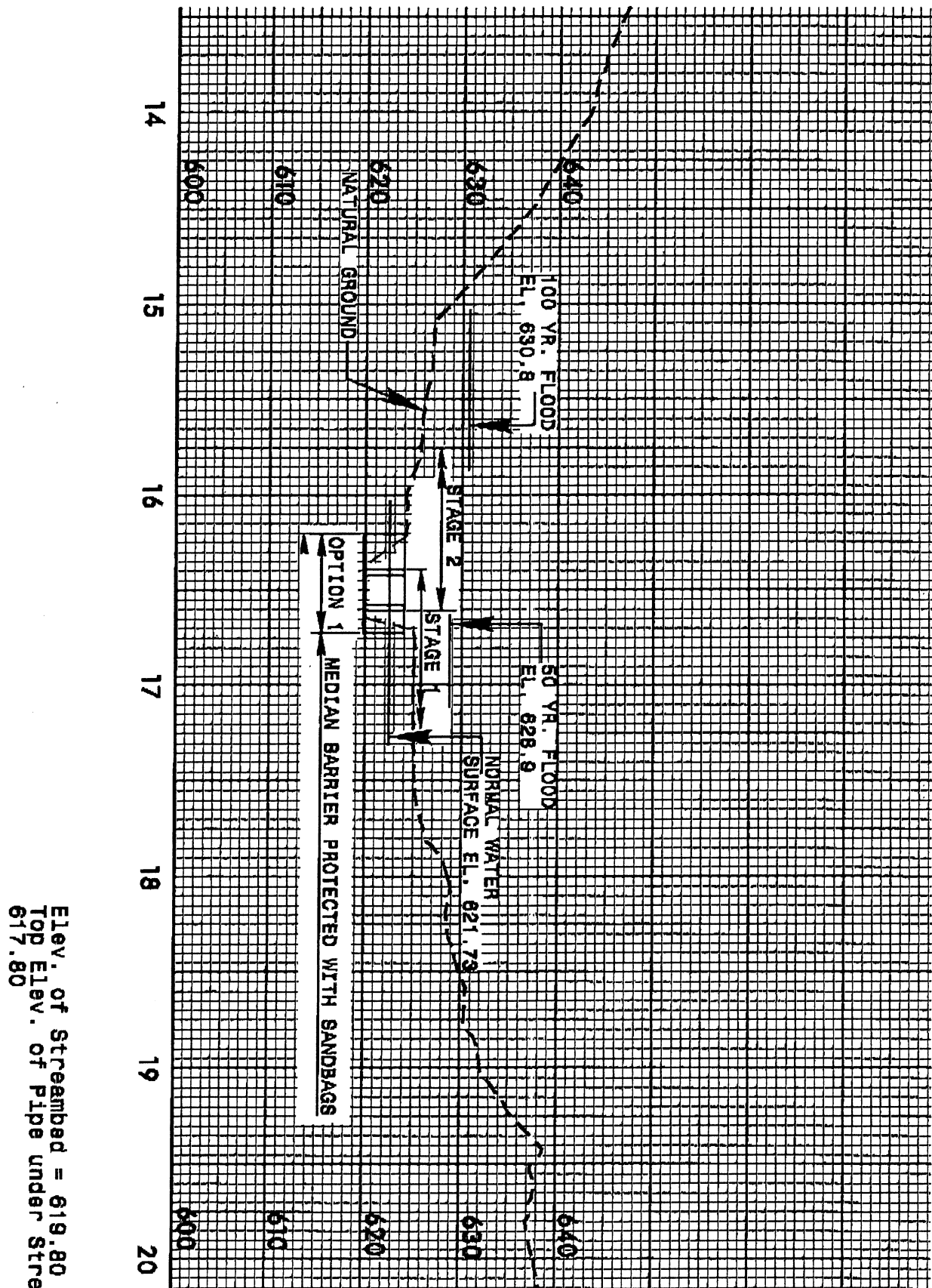
SHEET 9 OF 9

6/203



N.C. DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAY
GUILFORD COUNTY
PROJECT: 33197.1.1 (B-3851)
BRIDGE OVER PRONG OF ALAMANCE CREEK
AND APPROACHES ON BR-3143.





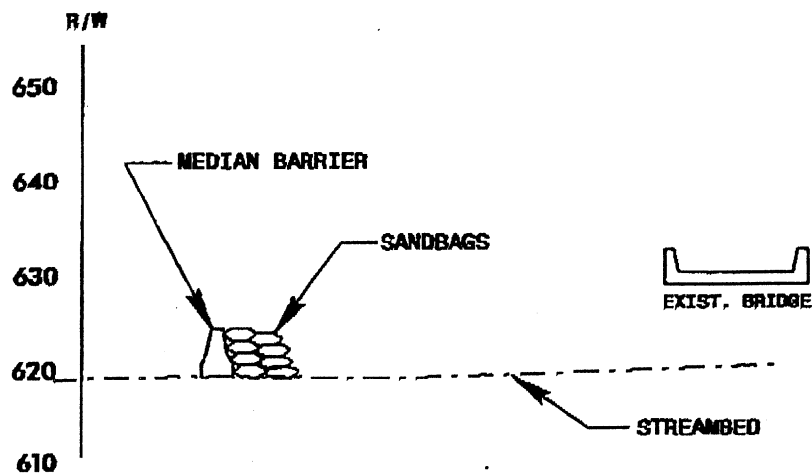
N. C. DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
GUILFORD COUNTY

PROJECT 33197.1.1 (B-3851)

WATERSHED OVER FLOOD OF ALABAMA CREEK
AND APPROACHES ON SR-5142

03/17/04

SHEET 2 OF 4



OPTION 1

TEMP. FILL IN SURFACE
WATERS = .005 AC.

CROSS - SECTION ALONG C CREEK

N. C. DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
GUILFORD COUNTY

PROJECT 23107.1.1 (B-2061)
BRIDGE OVER FORD OF ALABAMA CREEK
AND APPROACHES IN SR-9143

08/17/04

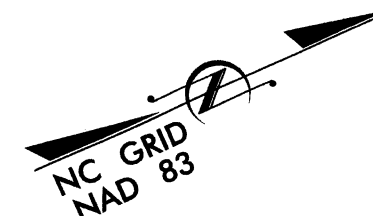
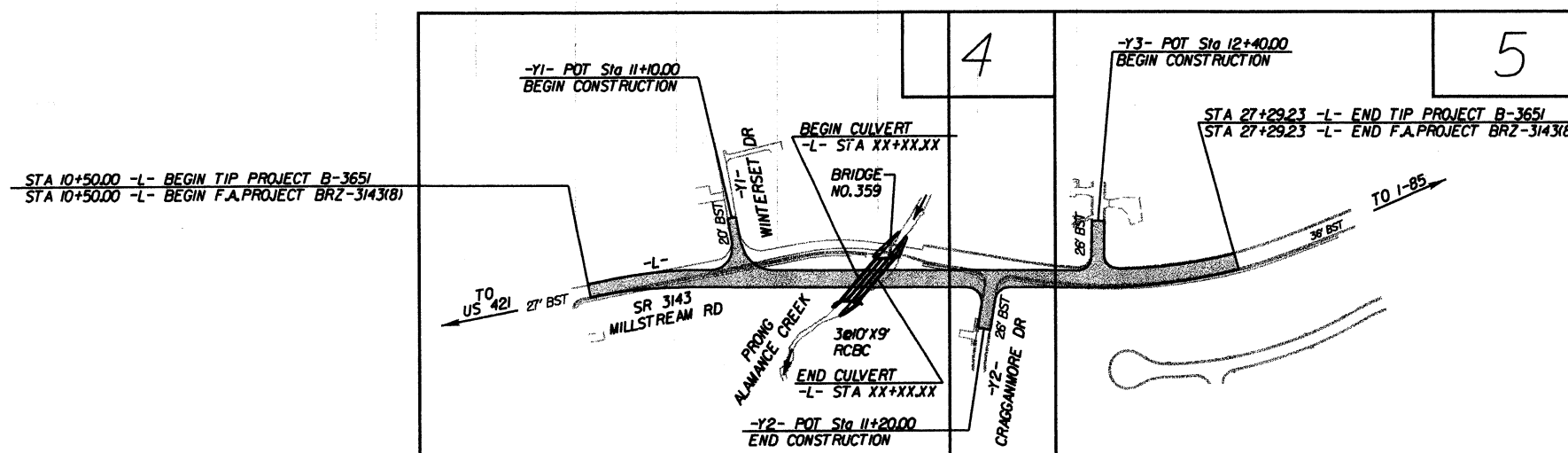
SHEET 4 OF 4

PROJECT: 33917.2.2

VICINITY MAP SHOWING LOCATION OF STATE PROJECT 3397.22

**LOCATION: BRIDGE NO. 359 ON SR 3143 (MILLSTREAM RD)
OVER PRONG ALAMANCE CREEK**

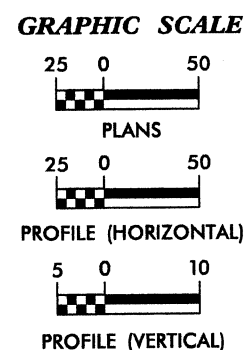
TYPE OF WORK: GRADING, PAVING, DRAINAGE, AND CULVERT

[illegible]

CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD III

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

This document, together with the concepts and designs presented herein, as an without written authorization and adoption by Kimley-Horn and Associates, Inc. shall be without liability to Kimley-Horn and Associates, Inc. for which it was prepared. Reuse of and improper reliance on this document instrument of service, is intended only for the specific purpose and client.



DESIGN DATA

ADT 2005 = 2,100 VPD
ADT 2025 = 3,800 VPD
DHV = 11%
D = 65%
T = 4% *
V = 50 mph

**VERTICAL CURVE AND
MAXIMUM GRADE
DESIGN EXCEPTIONS**

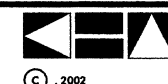
* (TTST 1% + DUAL 3%)

PROJECT LENGTH

LENGTH OF ROADWAY
F.A. PROJECT BRZ-3143(8) = 0.XXX MILES

LENGTH OF STRUCTURE
F.A. PROJECT BRZ-3143(8) = 0.XXX MILES

TOTAL LENGTH STATE PROJECT 33917.2.2 = 0.318 MILES

**PLANS PREPARED
FOR NCDOT BY:**

**Kimley-Horn
and Associates, Inc.**

Post Office Box 33068
Raleigh, North Carolina 27630

2002 STANDARD SPECIFICATIONS

RIGHT-OF-WAY DATE:
JUNE 23, 2003

LETTING DATE:
JUNE 15, 2004

HYDRAULICS ENGINEER

DIVISION OF HIGHWAYS STATE OF NORTH CAROLINA

SIGNATURE:
ROADWAY DESIGN

STATE DESIGN ENGINEER
DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

APPROVED
DIVISION ADMINISTRATOR DATE

SENT TO P/W: 23 JUNE 2003

R:\Pro\ec\A011036055\Plan\365\tsh

06/19/2003

*S.U.E = SUBSURFACE UTILITY ENGINEER

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

CONVENTIONAL SYMBOLS

ROADS & RELATED ITEMS

Edge of Pavement	-----
Curb	-----
Prop. Slope Stakes Cut	-----C-----
Prop. Slope Stakes Fill	-----F-----
Prop. Woven Wire Fence	-----○-----
Prop. Chain Link Fence	-----□-----
Prop. Barbed Wire Fence	-----◇-----
Prop. Wheelchair Ramp	-----WCR-----
Exist. Guardrail	-----T-----
Prop. Guardrail	-----T-----
Equality Symbol	-----⊕-----
Pavement Removal	-----X-----

RIGHT OF WAY

Baseline Control Point	-----◆-----
Existing Right of Way Marker	-----△-----
Exist. Right of Way Line w/Marker	-----△-----
Prop. Right of Way Line with Proposed	-----▲-----
R/W Marker (Iron Pin & Cap)	-----▲-----
Prop. Right of Way Line with Proposed	-----▲-----
(Concrete or Granite) R/W Marker	-----▲-----
Exist. Control of Access Line	-----C-----
Prop. Control of Access Line	-----C-----
Exist. Easement Line	-----E-----
Prop. Temp. Construction Easement Line	-----E-----
Prop. Temp. Drainage Easement Line	-----TDE-----
Prop. Perm. Drainage Easement Line	-----PDE-----

HYDROLOGY

Stream or Body of Water	-----
Flow Arrow	-----→-----
Disappearing Stream	----->-----
Spring	-----○-----
Swamp Marsh	-----↓-----
Shoreline	-----
Falls, Rapids	-----
Prop Lateral, Tail, Head Ditches	-----FLOW-----

STRUCTURES

MAJOR	
Bridge, Tunnel, or Box Culvert	-----CONC-----
Bridge Wing Wall, Head Wall	-----CONC WW-----
and End Wall	-----CONC WW-----

MINOR	
Head & End Wall	-----CONC HW-----
Pipe Culvert	=====
Footbridge	-----X-----
Drainage Boxes	-----CB-----
Paved Ditch Gutter	-----

UTILITIES

Exist. Pole	-----●-----
Exist. Power Pole	-----●-----
Prop. Power Pole	-----○-----
Exist. Telephone Pole	-----●-----
Prop. Telephone Pole	-----○-----
Exist. Joint Use Pole	-----●-----
Prop. Joint Use Pole	-----○-----
Telephone Pedestal	-----□-----
Cable TV Pedestal	-----□-----
Hydrant	-----◇-----
Satellite Dish	-----◇-----
Exist. Water Valve	-----⊗-----
Sewer Clean Out	-----⊕-----
Power Manhole	-----P-----
Telephone Booth	-----B-----
Water Manhole	-----W-----
Light Pole	-----◇-----
H-Frame Pole	-----◇-----
Power Line Tower	-----◇-----
Pole with Base	-----◇-----
Gas Valve	-----◇-----
Gas Meter	-----◇-----
Telephone Manhole	-----T-----
Power Transformer	-----T-----
Sanitary Sewer Manhole	-----S-----
Storm Sewer Manhole	-----S-----
Tank; Water, Gas, Oil	-----○-----
Water Tank With Legs	-----○-----
Traffic Signal Junction Box	-----S-----
Fiber Optic Splice Box	-----F-----
Television or Radio Tower	-----⊗-----
Utility Power Line Connects to Traffic	-----TS-----
Signal Lines Cut Into the Pavement	-----TS-----

Recorded Water Line	-----W-----
Designated Water Line (S.U.E.*)	-----W-----
Sanitary Sewer	-----SS-----
Recorded Sanitary Sewer Force Main	-----FSS-----
Designated Sanitary Sewer Force Main(S.U.E.*)	-----FSS-----
Recorded Gas Line	-----G-----
Designated Gas Line (S.U.E.*)	-----G-----
Storm Sewer	-----S-----
Recorded Power Line	-----P-----
Designated Power Line (S.U.E.*)	-----P-----
Recorded Telephone Cable	-----T-----
Designated Telephone Cable (S.U.E.*)	-----T-----
Recorded U/G Telephone Conduit	-----TC-----
Designated U/G Telephone Conduit (S.U.E.*)	-----TC-----
Unknown Utility (S.U.E.*)	-----PUTL-----
Recorded Television Cable	-----TV-----
Designated Television Cable (S.U.E.*)	-----TV-----
Recorded Fiber Optics Cable	-----FO-----
Designated Fiber Optics Cable (S.U.E.*)	-----FO-----
Exist. Water Meter	-----○-----
U/G Test Hole (S.U.E.*)	-----⊗-----
Abandoned According to U/G Record	-----ATTUR-----
End of Information	-----E.O.I-----

BOUNDARIES & PROPERTIES

State Line	-----
County Line	-----
Township Line	-----
City Line	-----
Reservation Line	-----
Property Line	-----
Property Line Symbol	-----PL-----
Exist. Iron Pin	-----EIP-----
Property Corner	-----+-----
Property Monument	-----ECM-----
Property Number	-----123-----
Parcel Number	-----6-----
Fence Line	-----X-----
Existing Wetland Boundaries	-----WLB-----
Proposed Wetland Boundaries	-----WLB-----
Existing Endangered Animal Boundaries	-----EAB-----
Existing Endangered Plant Boundaries	-----EPB-----

BUILDINGS & OTHER CULTURE

Buildings	-----
Foundations	-----
Area Outline	-----
Gate	-----
Gas Pump Vent or U/G Tank Cap	-----
Church	-----
School	-----
Park	-----
Cemetery	-----
Dam	-----
Sign	-----
Well	-----
Small Mine	-----
Swimming Pool	-----

TOPOGRAPHY

Loose Surface	-----
Hard Surface	-----
Change in Road Surface	-----
Curb	-----
Right of Way Symbol	-----R/W-----
Guard Post	-----GP-----
Paved Walk	-----
Bridge	-----
Box Culvert or Tunnel	-----
Ferry	-----
Culvert	-----
Footbridge	-----
Trail, Footpath	-----
Light House	-----

VEGETATION

Single Tree	-----
Single Shrub	-----
Hedge	-----
Woods Line	-----
Orchard	-----
Vineyard	-----VINEYARD-----

RAILROADS

Standard Gauge	-----
RR Signal Milepost	-----
Switch	-----



Kimley-Horn
and Associates, Inc.

P.O. BOX 33068
RALEIGH, N.C. 27636-3068

RIGHT-OF-WAY REV.
CONST. REV.

PROJECT REFERENCE NO. SHEET NO.

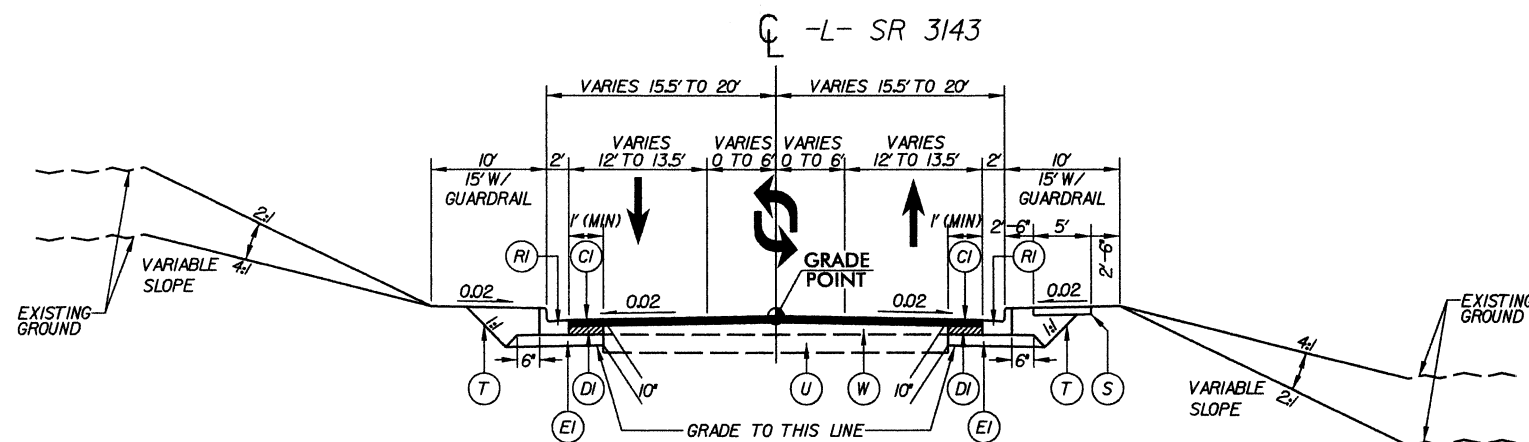
B-365/ 2

RW SHEET NO.

ROADWAY DESIGN
ENGINEER

PAVEMENT DESIGN
ENGINEER

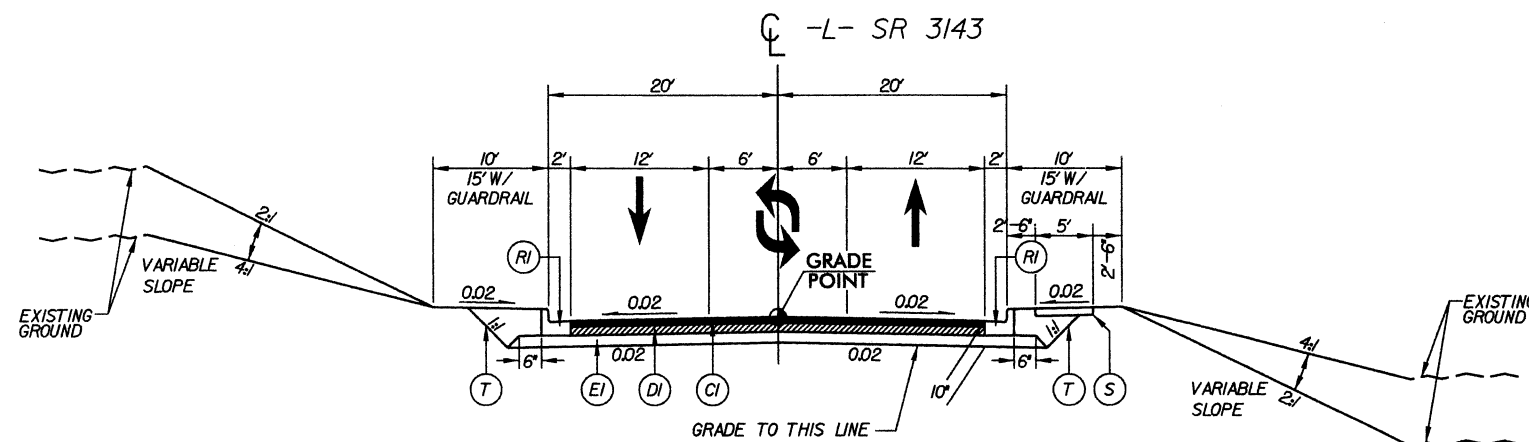
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



TYPICAL SECTION NO. 1

-L- STA 10+50.00 TO STA 12+50.00
-L- STA 21+00.00 TO STA 27+29.23

NOTE: MILL NOTCH TO KEY-IN S9.5A FROM
-L- STA 10+50.00 TO STA 11+00.00
-L- STA 26+79.23 TO STA 27+29.23
(SEE DETAIL W2 THIS SHEET)



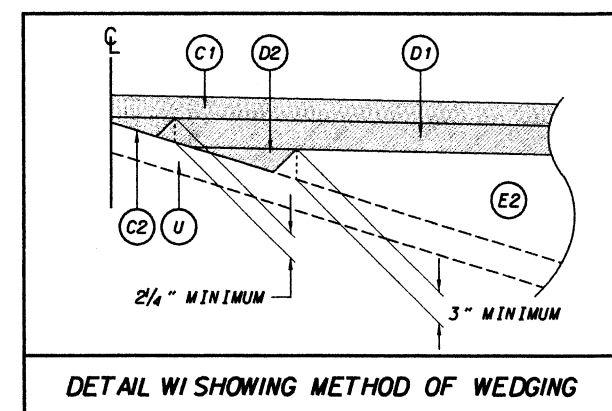
TYPICAL SECTION NO. 2

-L- STA 12+50.00 TO STA 21+00.00

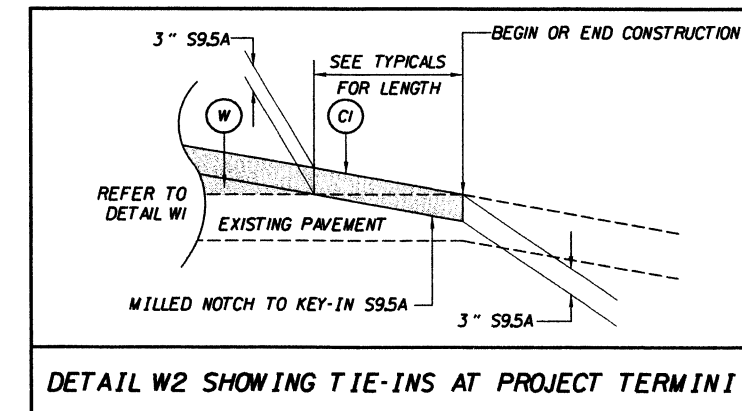
PAVEMENT SCHEDULE

C1	PROP. APPROX. 3" ASPHALT CONCRETE SURFACE COURSE TYPE S9.5A, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.
C2	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5A, AT AN AVERAGE RATE OF 112 LBS. PER SQ. YD. PER 1" DEPTH, TO BE PLACED IN LAYERS NOT LESS THAN 1" IN DEPTH OR GREATER THAN 15" IN DEPTH.
D1	PROP. APPROX. 4" ASPHALT CONCRETE INTERMEDIATE COURSE TYPE I19.0B, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.
D2	PROP. VAR. DEPTH ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH, TO BE PLACED IN LAYERS NOT LESS THAN 2.25" OR GREATER THAN 4" IN DEPTH.
E1	PROP. APPROX. 3" ASPHALT CONCRETE BASE COURSE TYPE B25.0B, AT AN AVERAGE RATE OF 342 LBS. PER SQ. YD.
E2	PROP. VAR. DEPTH ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH, TO BE PLACED IN LAYERS NOT LESS THAN 3" OR GREATER THAN 5.5" IN DEPTH.
RI	2'-6" CONCRETE CURB & GUTTER
S	4" CONCRETE SIDEWALK
T	EARTH MATERIAL
U	EXISTING PAVEMENT
W	VARIABLE DEPTH ASPHALT PAVEMENT (SEE DETAIL WITH THIS SHEET)

NOTE: PAVEMENT EDGE SLOPES ARE 1/4" UNLESS OTHERWISE INDICATED



DETAIL W1 SHOWING METHOD OF WEDGING



DETAIL W2 SHOWING TIE-INS AT PROJECT TERMINI



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RALEIGH, N.C. 27636-3068

RIGHT-OF-WAY REV.
CONST. REV.

PROJECT REFERENCE NO. SHEET NO.

B-365I

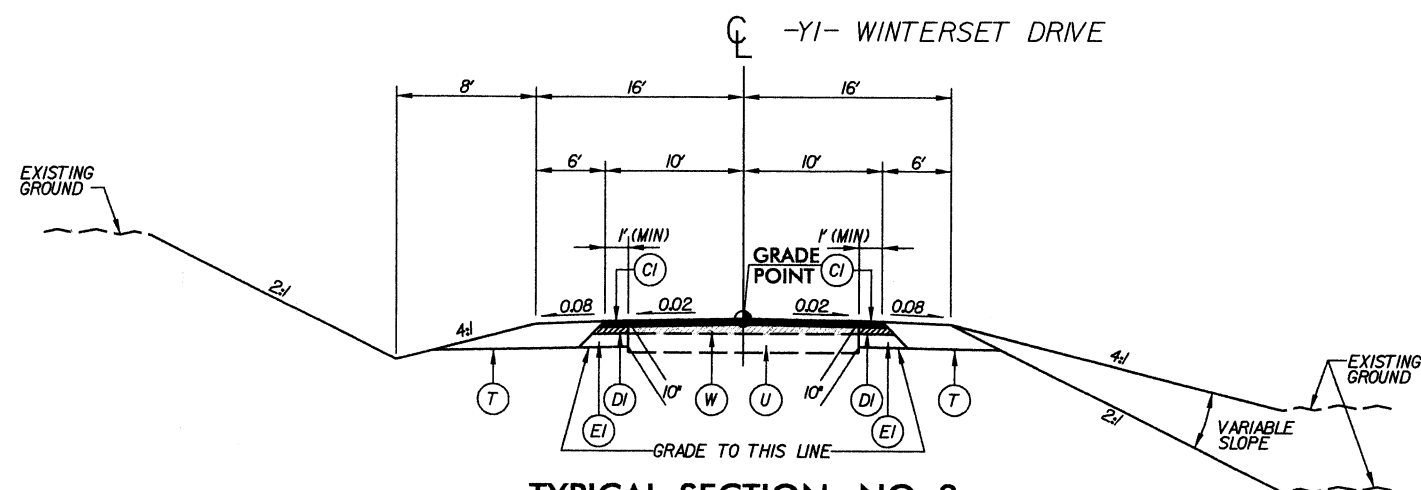
2A

R/W SHEET NO.

ROADWAY DESIGN
ENGINEER

PAVEMENT DESIGN
ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

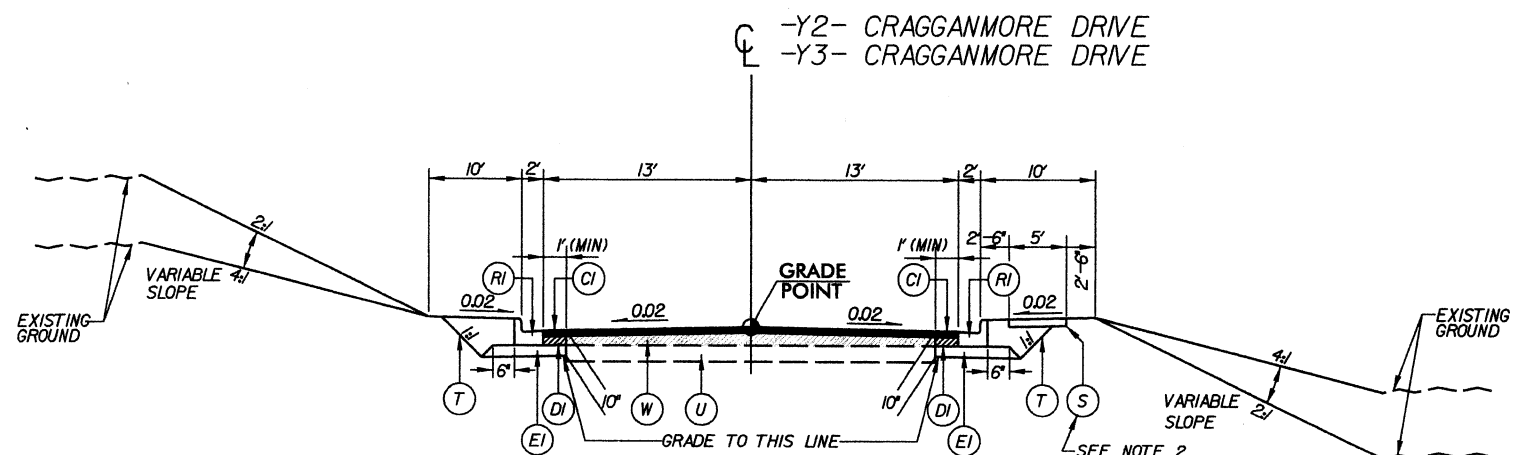


TYPICAL SECTION NO. 3

-Y1- STA 11+10.00 TO STA 11+76J6 LEFT
-Y1- STA 11+10.00 TO STA 11+74.00 RIGHT

NOTE 1: MILL NOTCH TO KEY-IN S9.5A FROM
-Y1- STA 11+10.00 TO STA 11+60.00
(SEE DETAIL W2 SHEET 2)

NOTE 2: USE 2'-6\"/>



TYPICAL SECTION NO. 4


-Y2- STA 10+18.24 TO STA 11+20.00
-Y3- STA 12+40.00 TO STA 13+61.43

NOTE 1: MILL NOTCH TO KEY-IN S9.5A FROM
-Y2- STA 10+70.00 TO STA 11+20.00
(SEE DETAIL W2 SHEET 2)

-Y3- STA 12+40.00 TO 12+65.00
NOTE 2: NO SIDEWALK ON -Y3-

CONDENSED PAVEMENT SCHEDULE	
CI	3\"/>
DI	4\"/>
EI	3\"/>
RI	2'-6\"/>
S	4\"/>
T	EARTH MATERIAL
U	EXISTING PAVEMENT
W	VARIABLE DEPTH ASPHALT PAVEMENT

PROJECT REFERENCE NO.	SHEET NO.
B-365I	3A



**Kimley-Horn
and Associates, Inc.**

P.O. BOX 33068
RALEIGH, N.C. 27636-3068

LIST OF PIPES, ENDWALLS, ETC. (FOR PIPES 48" & UNDER)


[illegible]

COMPUTED BY: LN. MAGURE DATE: 1/26/03
CHECKED BY: J.W. MOORE DATE: 1/30/03

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

LIST OF PIPES, ENDWALLS, ETC. (FOR PIPES 48" & UNDER)

PROJECT REFERENCE NO.	SHEET NO.
B-365I	3B



**Kimley-Horn
and Associates, Inc.**

P.O. BOX 33068

RALEIGH, N.C. 27636-3068

[illegible]


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05/19/2003

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PROJECT REFERENCE NO.
B-3651

SHEET NO.
3C



Kimley-Horn
and Associates, Inc.
P.O. BOX 33068
RALEIGH, N.C. 27636-3068

"N" = DISTANCE FROM EDGE OF LANE TO FACE OF GUARDRAIL.
TOTAL SHOULDER WIDTH = DISTANCE FROM EDGE OF TRAVEL LANE TO SHOULDER BREAK POINT.
FLARE LENGTH = DISTANCE FROM LAST SECTION OF PARALLEL GUARDRAIL TO END OF GUARDRAIL.
W = TOTAL WIDTH OF FLARE FROM BEGINNING OF TAPER TO END OF GUARDRAIL.
G = GATING IMPACT ATTENUATOR TYPE 350
NG = NON-GATING IMPACT ATTENUATOR TYPE 350

GUARDRAIL SUMMARY

SURVEY LINE	BEG. STA.	END STA.	LOCATION	LENGTH			WARRANT POINT		"N" DIST. FROM E.O.L.	TOTAL BERM WIDTH	FLARE LENGTH		W		ANCHORS										IMPACT ATTENUATOR TYPE 350			SINGLE FACED GUARDRAIL	REMOVE EXISTING GUARDRAIL	REMOVE AND STOCKPILE EXISTING GUARDRAIL	REMARKS
				STRAIGHT	SHOP CURVED	DOUBLE FACED	APPROACH END	TRAILING END			APPROACH END	TRAILING END	XI MOD	XI	GRAU 350	M-350	III	CAT-1	VI MOD	BIC	AT-1	EA	G	NG							
-L-	14+97.64	20+85.14	LT	587.50			15+72.64	20+00.00	12	14	50	50	1	1			2														
-L-	12+74.12	19+24.12	RT	650.00			13+60.43	18+49.12	12	14	50	50	1	1			2														
			SUBTOTAL	1237.50																											
			LESS ANCHOR DEDUCTIONS																												
			GRAU 350 4x50.00' =	200.00																											
			TOTAL	1037.50																											
			SAY	1050													4														

ADDITIONAL GUARDRAIL POSTS = 5 EA

SUMMARY OF EARTHWORK
IN CUBIC YARDS

REMOVAL OF EXISTING ASPHALT PAVEMENT			
LINE	STATION TO STATION	LOCATION	SQ. YDS.
-L-	14+30 TO 17+60	LT	981
-L-	17+70 TO 19+80	LT	302
TOTAL			1283
SAY			1300

LOCATION	UNCLASSIFIED EXCAVATION	UNDERCUT	EMBT + 20%	BORROW	WASTE
SUMMARY ONE					
-L- STA 10+50.00 TO STA 17+06.68	121		12788	12667	
-Y1- STA 11+10.00 TO STA 12+38.71	5		140	135	
TOTAL SUMMARY ONE	126		12928	12802	
SUMMARY TWO					
-L- STA 17+06.68 TO STA 27+29.23	382		8084	7702	
-Y2- STA 10+18.24 TO STA 11+20.00	43		10		33
-Y3- STA 12+15.00 TO STA 13+61.43	99		9		90
TOTAL SUMMARY TWO	524		8103	7702	123
PROJECT TOTALS	650		21031	20504	123
ESTIMATED UNDERCUT		750	900	900	
USE WASTE IN LIEU OF BORROW				-123	-123
SUBTOTALS	650		21931	21281	0
EST 5% TO REPLACE TOP SOIL ON BORROW PITS				1064	
GRAND TOTALS	650		21931	22345	0
SAY	700			23000	

APPROXIMATE QUANTITIES ONLY. UNCLASSIFIED EXCAVATION, FINE GRADING, CLEARING AND GRUBBING, BREAKING OF EXISTING PAVEMENT, AND REMOVAL OF EXISTING PAVEMENT WILL BE PAID FOR AT THE CONTRACT LUMP SUM PRICE FOR "GRADING".

R/W REVISION PARCELS 2,5 08/01/03
REVISED MARKER SAMPLING TO: BY CONTRACT 8/1/03

<u>-L-</u>	<u>-Y2-</u>
PI Sta 11+95.12	PI Sta 11+98.97
$\Delta = 1^\circ 23' 57.1''$ (RT)	$\Delta = 7^\circ 59' 55.1''$ (LT)
D = 5' 00" 00.0"	D = 16' 22" 12.8"
L = 227.98'	L = 48.86'
T = 114.37'	T = 24.47'
R = 1,145.92'	R = 350.00'
SE = 0.04	SE = EXISTING
RO = 120'	RO = EXISTING

TRAFFIC DIAGRAM

1999 ADT	WINTERSET	DR (-Y-)
2025 ADT		
	-100	DHV = 11%
	100	DIR = 65%
		TTST = 1%
		DUAL = 2%
	-100	-100
	-100	100
SR 3/43		
(-L-)		
DHV = 11%	1500	1500
DIR = 65%	3700	3800
TTST = 1%		
DUAL = 3%		



**Kimley-Horn
and Associates, Inc.**

P.O. BOX 33068
RALEIGH, N.C. 27636-3068

RIGHT-OF-WAY REV.
CONST. REV.

PROJECT REFERENCE NO.	SHEET NO.
-----------------------	-----------

B-365/	4
--------	---

RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

NC GRID
NAD 83

DEDICATED TO
GUILFORD COUNTY,
CITY OF GREENSBORO &
THE GENERAL PUBLIC AS
DRAINAGEWAY, OPEN SPACE
AND UTILITY EASEMENT
P.B. 147 PG. 100

M4-1 TOP=655.39 B ¹ OUT=648.8,9	M4-2 TOP=643.74 B ¹ IN=635.29 B ² OUT=635.65	M4-3 TOP=626.61 B ¹ IN=620.03 B ² OUT=620.35	M4-4 TOP=627.97 B ¹ IN=620.62 B ² OUT=620.99 B ³ OUT=620.96	M4-5 TOP=632.35 B ¹ IN=626.22 B ² OUT=626.55
M4-6 TOP=625.34 B ¹ IN=619.62	M4-7 TOP=639.66 B ¹ OUT=635.62	M4-8 TOP=641.62 B ¹ IN=632.36 B ² IN=632.31 B ³ OUT=622.29		
C8-1 TOP=637.22 B ¹ IN=634.10 B ² OUT=633.66	C8-2 TOP=637.22 B ¹ IN=629.01 B ² OUT=628.91	C8-3 TOP=629.74 B ¹ IN=625.38 B ² OUT=625.73	C8-4 TOP=633.00 B ¹ IN=627.52 B ² OUT=627.40	C8-5 TOP=637.71 B ¹ IN=635.81 B ² OUT=635.40
C8-6 TOP=637.48 B ¹ IN=633.80 B ² OUT=632.93	C8-7 TOP=637.71 B ¹ IN=614.25 B ² OUT=633.88			

-BYI-8 PINC 5+00.00
-L- Sta 13+22.09 (460.75' LT)

-L- POT Sta 10+50.00
BEGIN STATE PROJECT B-365
BEGIN CONSTRUCTION
BEGIN CURB & GUTTER

-L- POT Sta 10+00.00

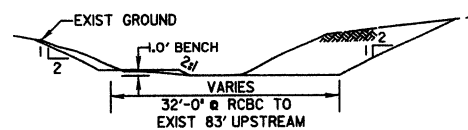
-BL - B365I-2 PINC 8+13.82
-L- Sta 9+70+/-

**JAMES T. WILSON &
WANDA B. WILSON
D.B. 5053 PG. 1775**

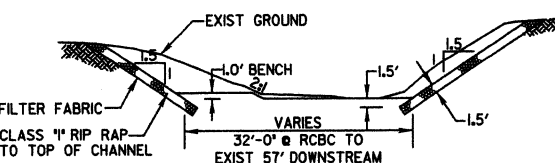
VILLAGES OF MILLST
HOMEOWNERS ASSOCIAT
D.B. 5056 PG. 161

-BL- B365I-I POT 5+00.00

CHANNEL DETAIL



TYPICAL SECTION - INLET CHANNEL



TYPICAL SECTION - OUTLET CHANNEL

DATUM	DESCRIPTION
1	10/1/1980
2	10/1/1980
3	10/1/1980
4	10/1/1980
5	10/1/1980
6	10/1/1980
7	10/1/1980
8	10/1/1980
9	10/1/1980
10	10/1/1980
11	10/1/1980
12	10/1/1980
13	10/1/1980
14	10/1/1980
15	10/1/1980
16	10/1/1980
17	10/1/1980
18	10/1/1980
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22	10/1/1980
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89	10/1/1980
90	10/1/1980
91	10/1/1980
92	10/1/1980
93	10/1/1980
94	10/1/1980
95	10/1/1980
96	10/1/1980
97	10/1/1980
98	10/1/1980
99	10/1/1980
100	10/1/1980

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT
IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY
MCDOT FOR MONUMENT "B3649-1"
WITH NAD 1983/95 STATE PLANE GRID COORDINATES OF
NORTHING: 836228.9873111 EASTING: 1803370.3303111
THE ABOVE COMBINED GRID FACTOR USED ON THIS PROJECT
(GROUND TO GRID) IS: 0.999941580
THE N.C. LAMBERT GRID BEARING AND
LOCALIZED HORIZONTAL GROUND DISTANCE FROM
"B3649-1" TO ± STATION 10+00.00 IS
N 15° 59' 08.0" E 344.81 FT
ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES
VERTICAL DATUM USED IS MVD 88

REMOVAL OF EXISTING ASPHALT PAVEMENT

**** VERTICAL CURVE AND MAXIMUM GRADE DESIGN EXCEPTION**

SEE SHEET NO.6 FOR -L- PROFILE
SEE SHEET NO.7 FOR -Y1- AND -Y2- PROFILES
SEE SHEET NOS. C-1 THRU C- FOR CULVERT PLANS

MATCH LINE -L- STA 21+00 (SHEET 5)

r:\project\011036055\plan\b365\s04.psh

07/22/2003



Kimley-Horn
and Associates, Inc.

P.O. BOX 33068
RALEIGH, N.C. 27636-3068

RIGHT-OF-WAY REV.
CONST. REV.

PROJECT REFERENCE NO.

B-3651

SHEET NO.

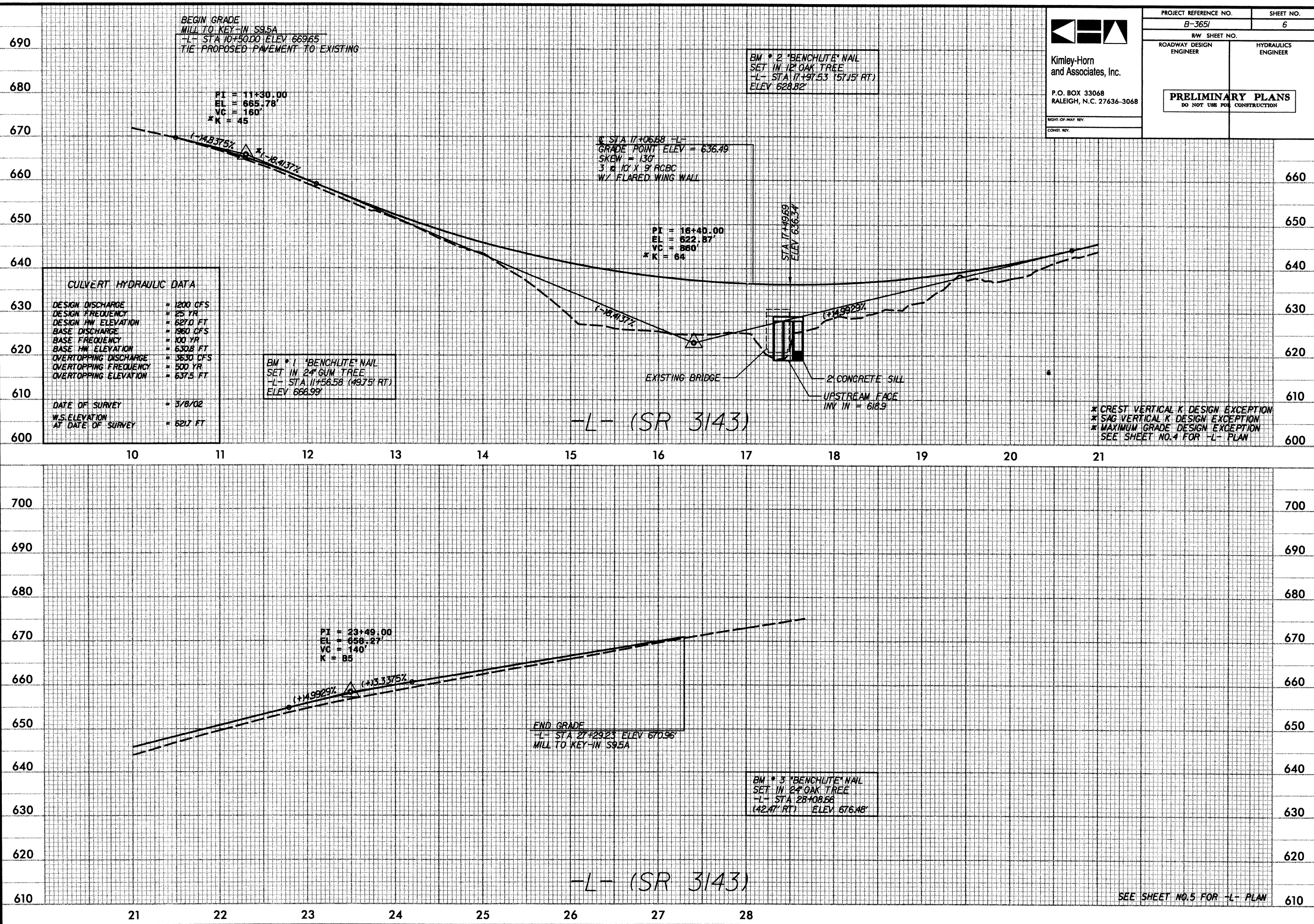
6

RW SHEET NO.

ROADWAY DESIGN
ENGINEER

HYDRAULICS
ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION





Kimley-Horn
and Associates, Inc.

P.O. BOX 33068
RALEIGH, N.C. 27636-3068

RIGHT-OF-WAY REV.
CONST. REV.

PROJECT REFERENCE NO. SHEET NO.

B-365/ 7

R/W SHEET NO.

ROADWAY DESIGN
ENGINEER

HYDRAULICS
ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

690

680

670

660

650

640

630

620

610

600

BEGIN GRADE
WILL TO KEY-IN S9.5A
-Y1- STA 11+10.00 ELEV 646.48
TIE PROPOSED PAVEMENT TO EXISTING

PI = 11+60.00
EL = 644.66'
VC = 100'
K = 23

-L- STA 14+13.62 =
-Y1- STA 12+57.00
ELEV 645.15

END GRADE
-L- STA 14+10.37 (18' LT) =
-Y1- STA 12+58.71
ELEV 645.17

-L- STA 14+13.62 =
-Y1- STA 12+57.00
ELEV 645.15

-Y1- (WINTERSET DRIVE)

SEE SHEET NO.4 FOR -Y1- PLAN

10

11

12

680

670

660

650

640

630

620

610

600

590

END GRADE
WILL TO KEY-IN S9.5A
-Y2- STA 11+20.00 ELEV 640.10
TIE PROPOSED PAVEMENT TO EXISTING

PI = 10+70.00
EL = 639.51'
VC = 100'
K = 28

-L- STA 12+33.77 =
-Y2- STA 10+18.24
ELEV 640.72

BEGIN GRADE
-L- STA 19+36.50 (18' RT) =
-Y2- STA 10+18.24
ELEV 640.72

-L- STA 19+39.42 =
-Y2- STA 10+30.00
ELEV 641.20

-Y2- (CRAGGANMORE DRIVE)

SEE SHEET NO.4 FOR -Y2- PLAN

10

11

12

680

670

660

650

640

630

620

610

600

BEGIN GRADE
WILL TO KEY-IN S9.5A
-Y3- STA 12+40.00 ELEV 653.47
TIE PROPOSED PAVEMENT TO EXISTING

PI = 12+70.00 PI = 13+25.00
EL = 653.32' EL = 651.08'
VC = 40' VC = 70'
K = 11 K = 10

-L- STA 22+48.04 =
-Y3- STA 13+16.43
ELEV 652.16

END GRADE
-L- STA 22+48.30 (18' LT) =
-Y3- STA 13+16.43
ELEV 652.16

-L- STA 22+48.04 =
-Y3- STA 13+16.43
ELEV 652.16

-Y3- (CRAGGANMORE DRIVE)

SEE SHEET NO.5 FOR -Y3- PLAN

10

11

12

13

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06/23/2003


DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

CROSS-SECTION SUMMARY
IN CUBIC YARDS

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

PROJECT REFERENCE NO.
B-3651

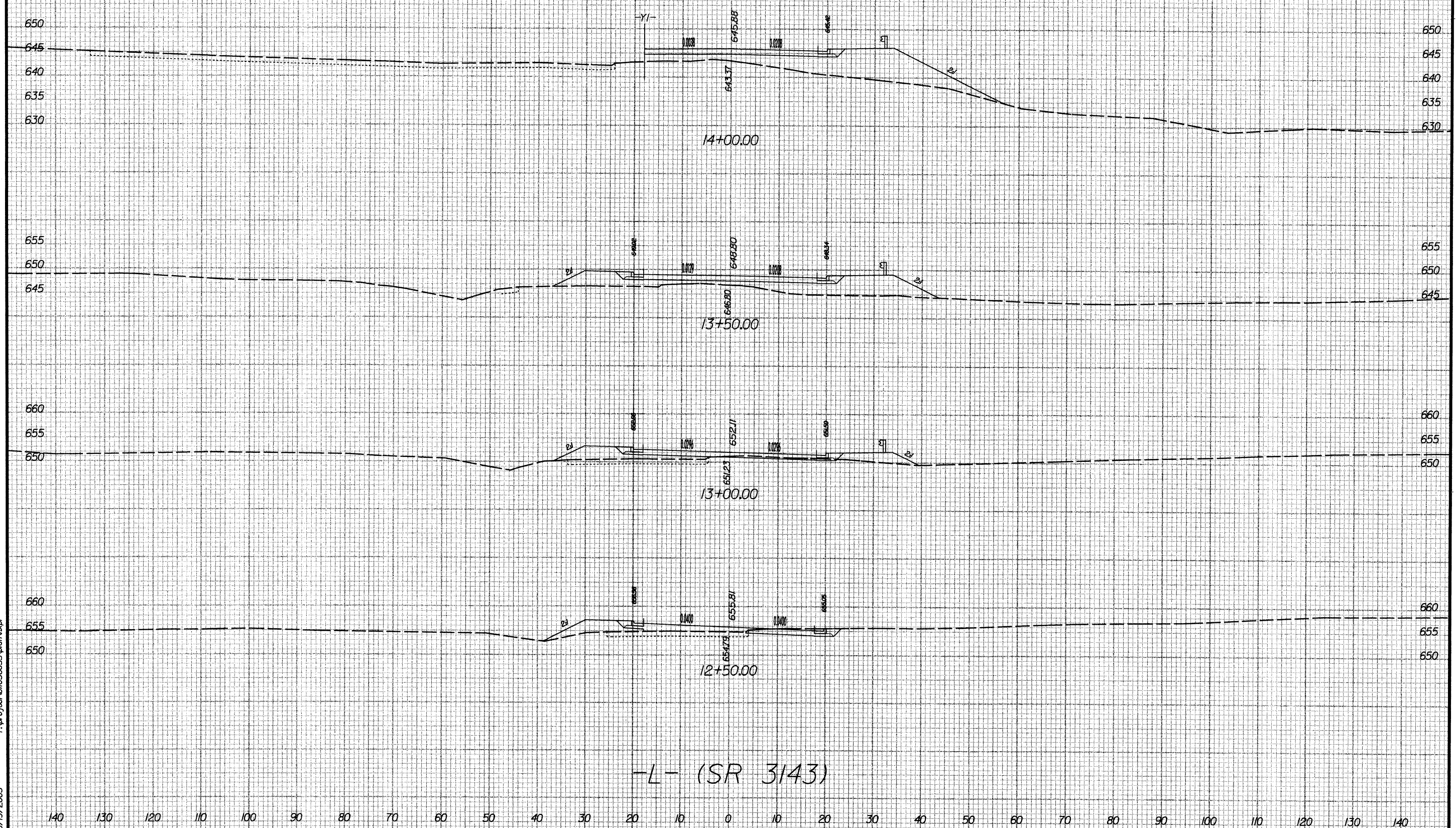
SHEET NO.
X-0



Kimley-Horn
and Associates, Inc.
P.O. BOX 33068
RALEIGH, N.C. 27636-3068

STATION	UNCLASSIFIED EXCAVATION	EMBANKMENT	STATION	UNCLASSIFIED EXCAVATION	EMBANKMENT
-L-			26+50	40	15
10+50	0	0	27+00	56	11
11+00	10	8			
11+50	19	27	-Y1-		
12+00	22	46	11+10	0	0
12+50	35	60	11+50	2	9
13+00	28	98	12+00	3	131
13+50	7	223			
14+00	0	369	-Y2-		
14+50	0	954	10+50	0	0
15+00	0	1673	11+00	38	9
15+50	0	1925	11+20	5	1
16+00	0	1959			
16+50	0	1827	-Y3-		
17+00	0	1488	12+15	0	0
17+50	0	1528	12+50	18	1
17+53.09	0	112	13+00	81	8
18+00	0	1490			
18+50	0	1115			
19+00	0	699			
19+50	37	400			
20+00	37	311			
20+50	8	277			
21+00	13	147			
21+50	16	90			
22+00	25	82			
22+50	21	74			
23+00	14	84			
23+50	12	91			
24+00	8	83			
24+50	11	60			
25+00	21	32			
25+50	30	18			
26+00	33	17			

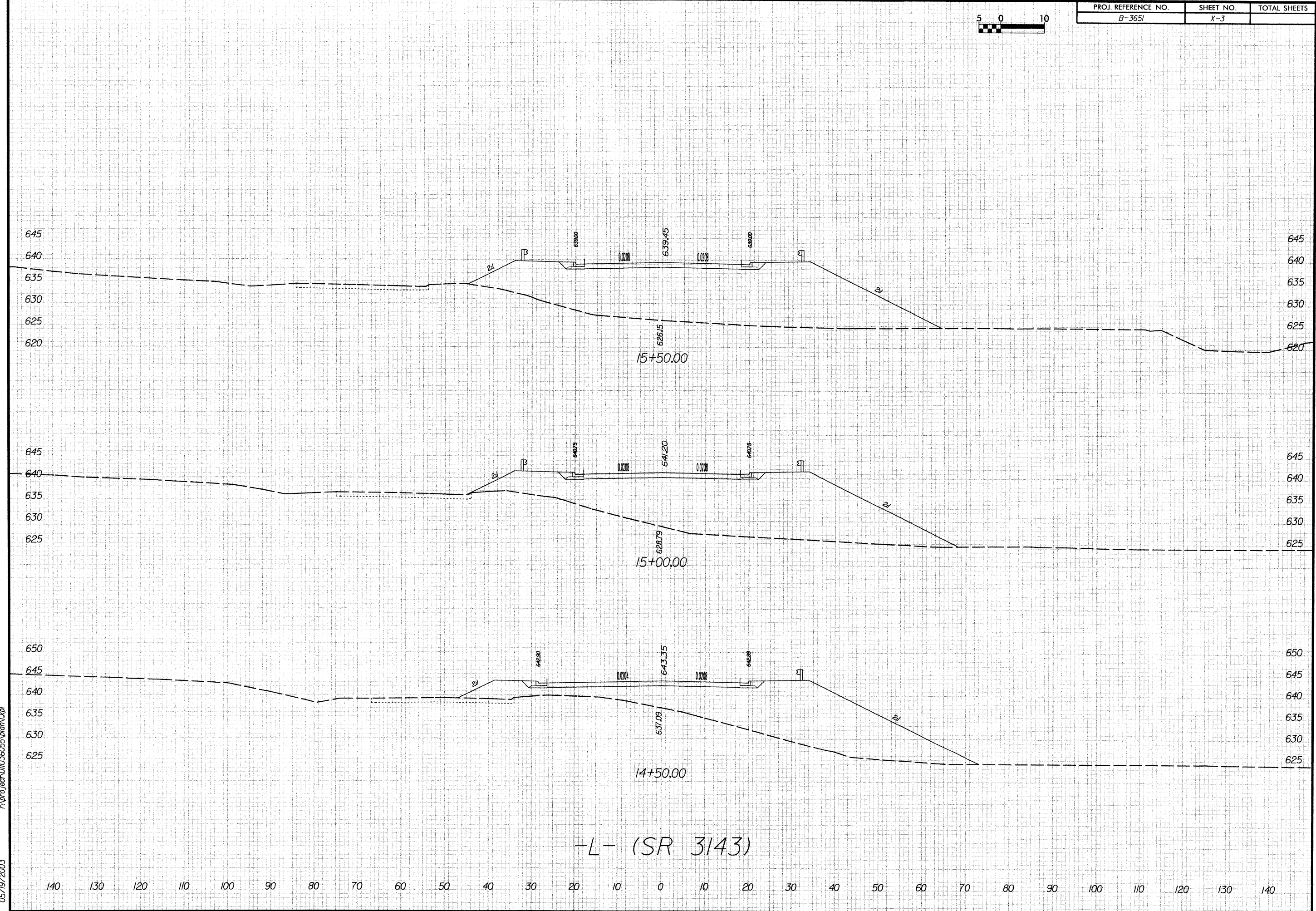
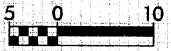
APPROXIMATE QUANTITIES ONLY. UNCLASSIFIED EXCAVATION, FINE GRADING,
CLEARING AND GRUBBING, BREAKING OF EXISTING PAVEMENT, AND REMOVAL
OF EXISTING PAVEMENT WILL BE PAID FOR AT THE CONTRACT LUMP SUM PRICE
FOR "GRADING".



-L- (SR 3143)

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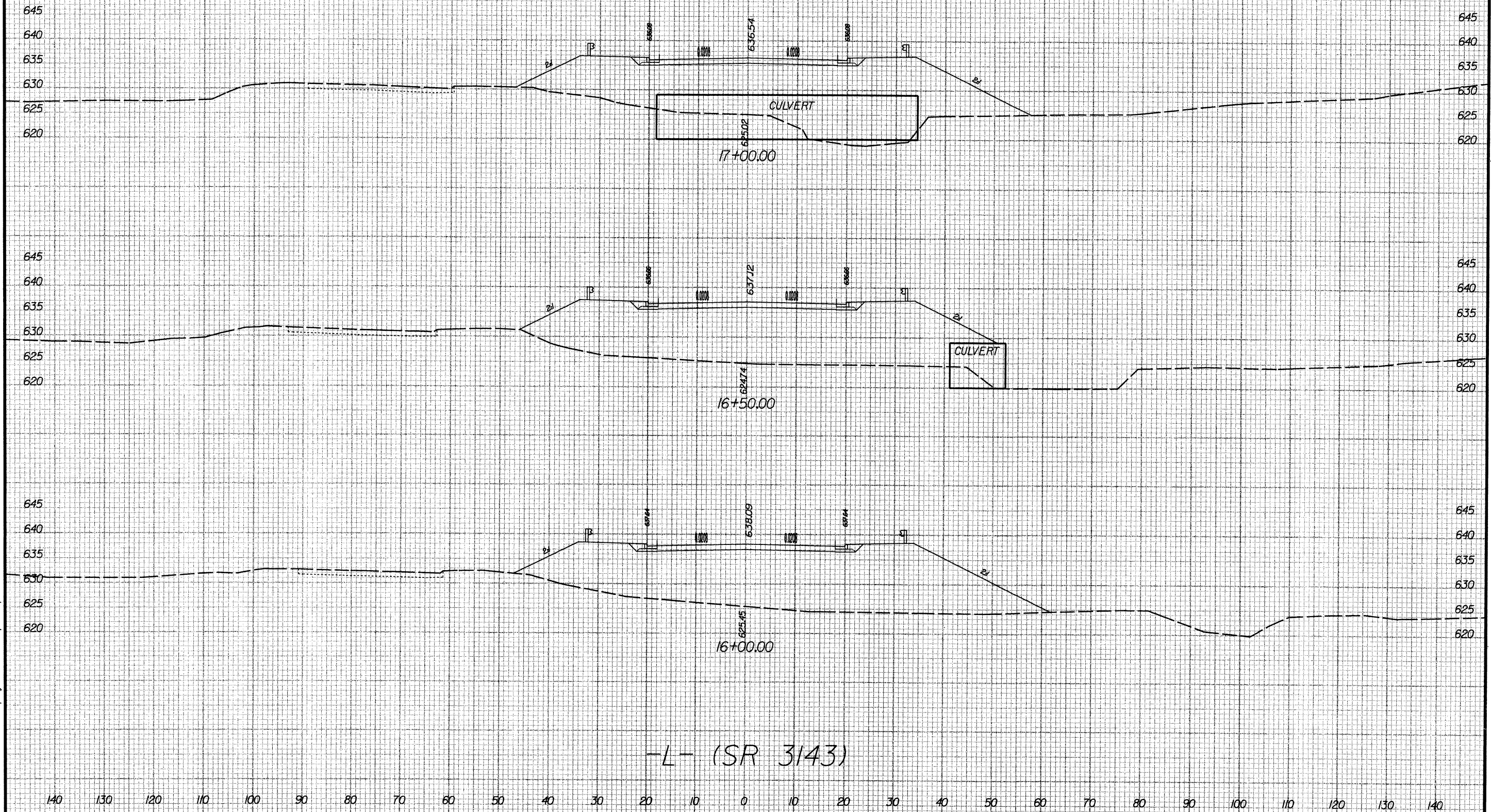
05/19/2003

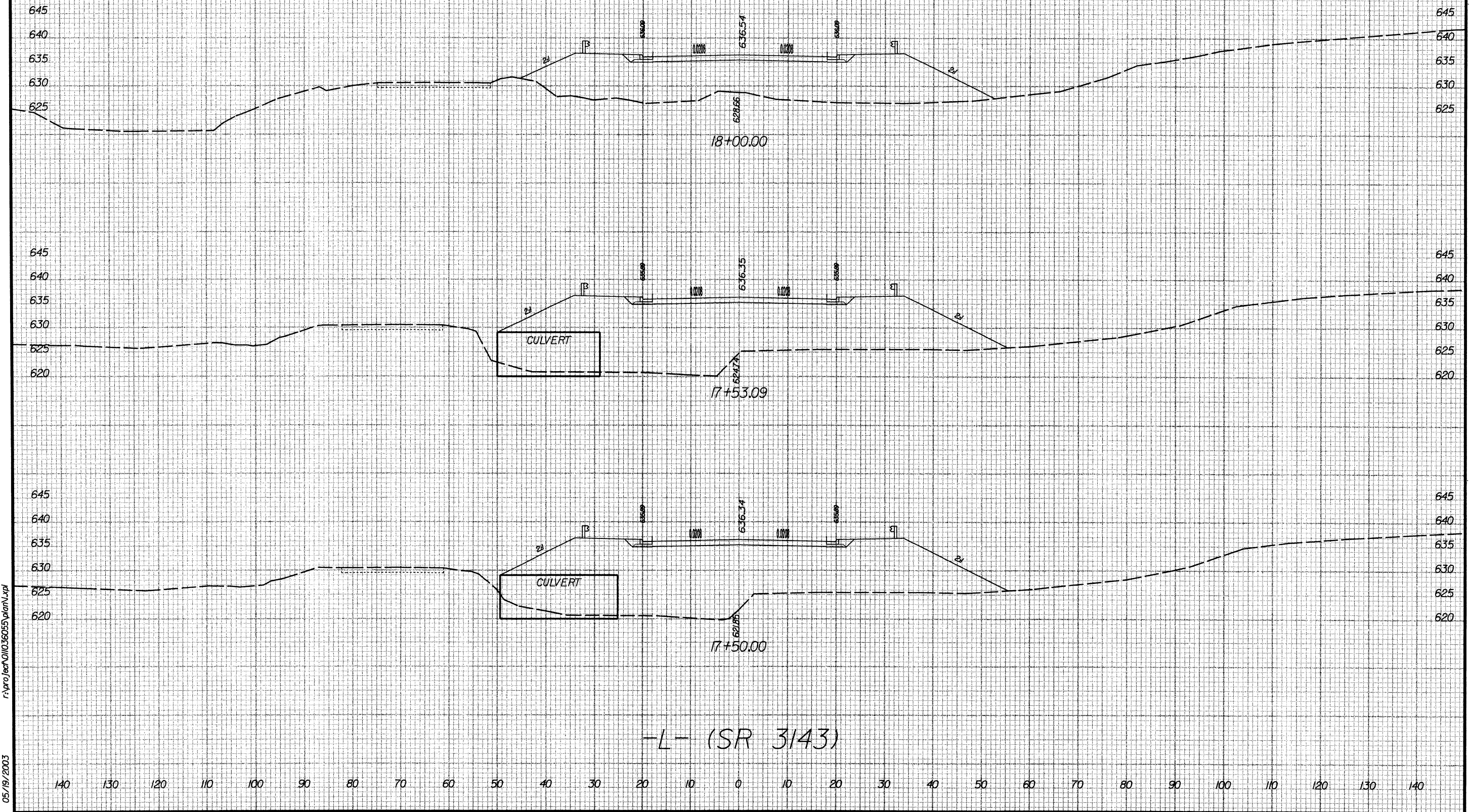


-L- (SR 3143)

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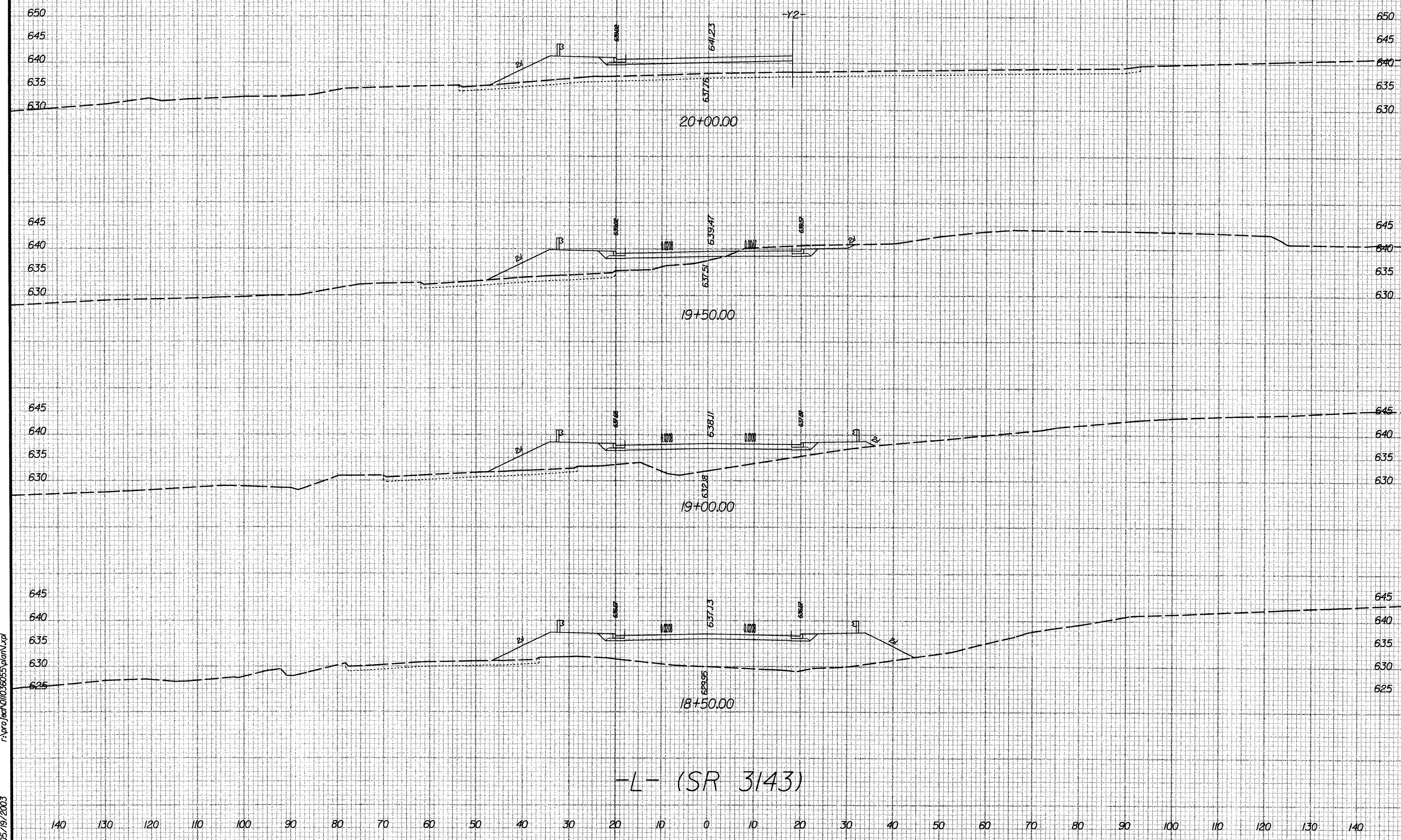
05/19/2003



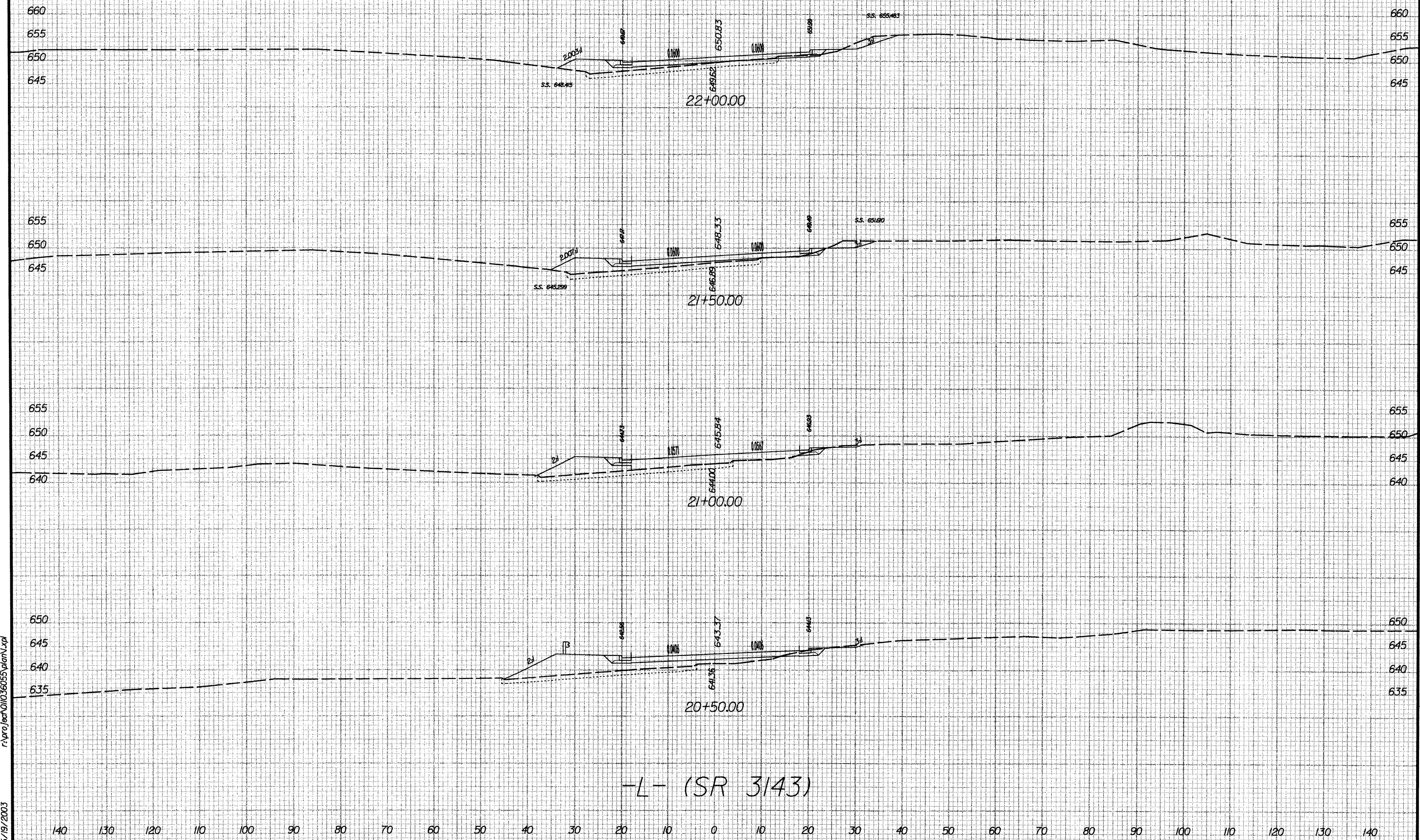


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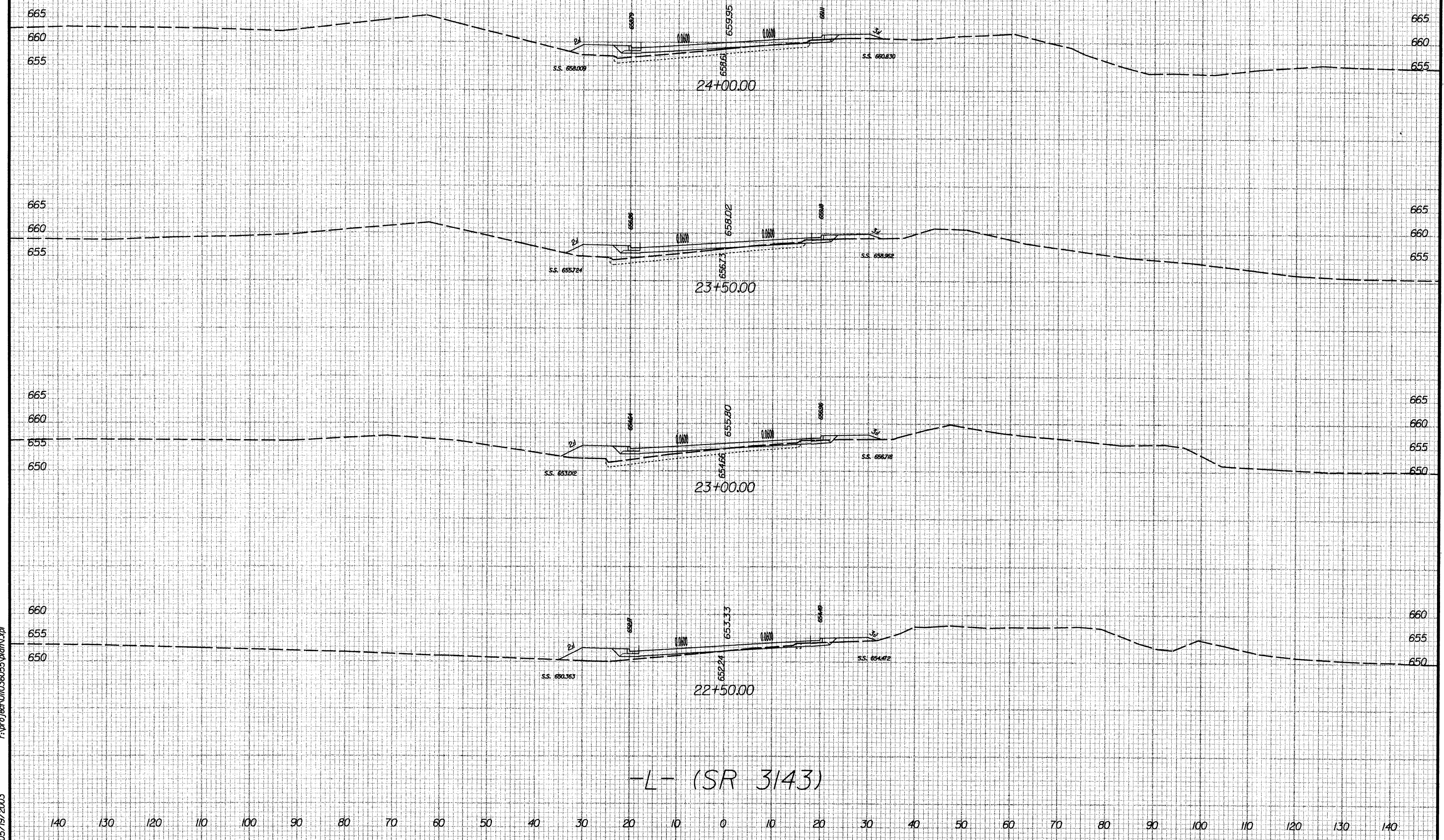
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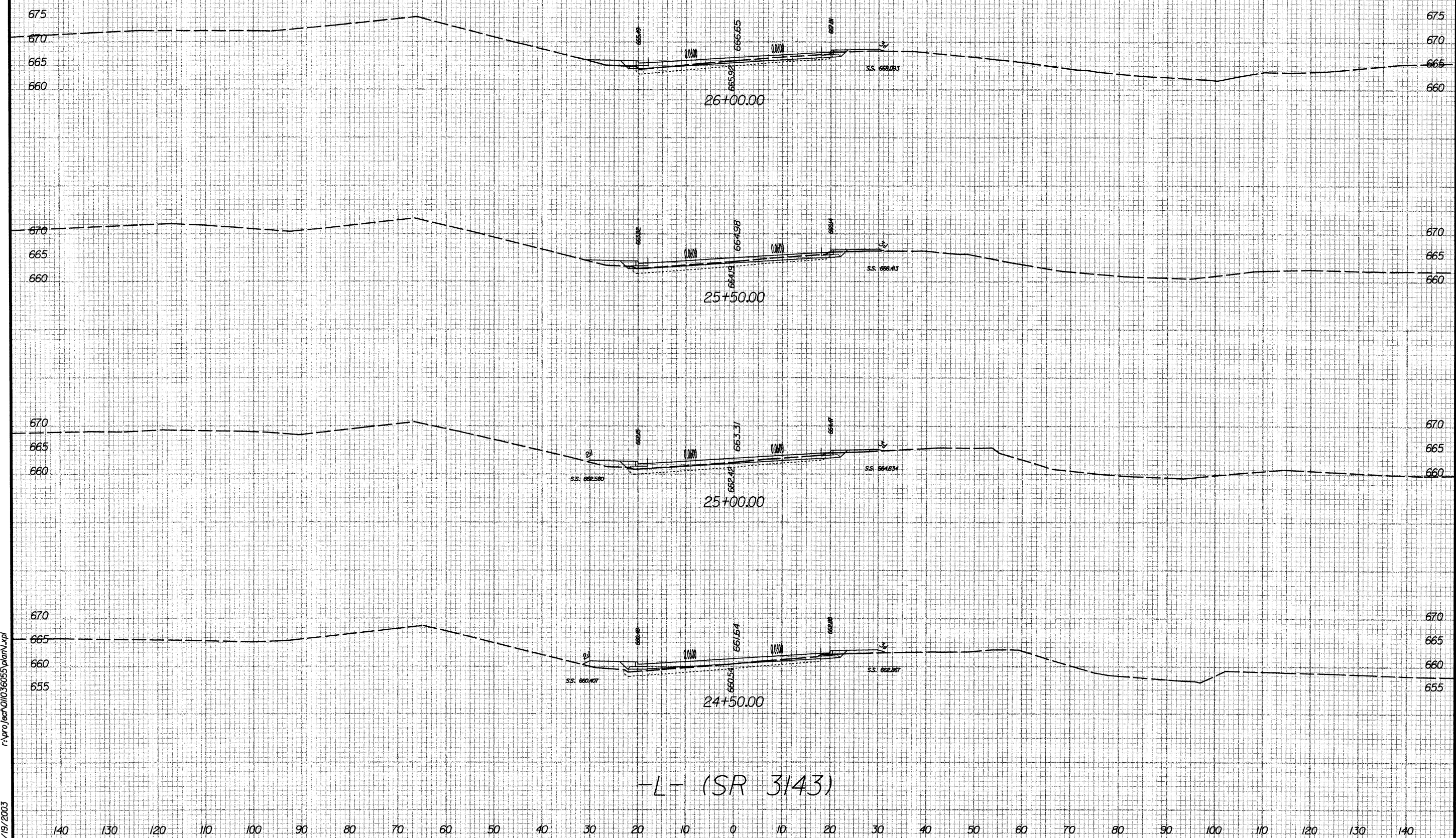


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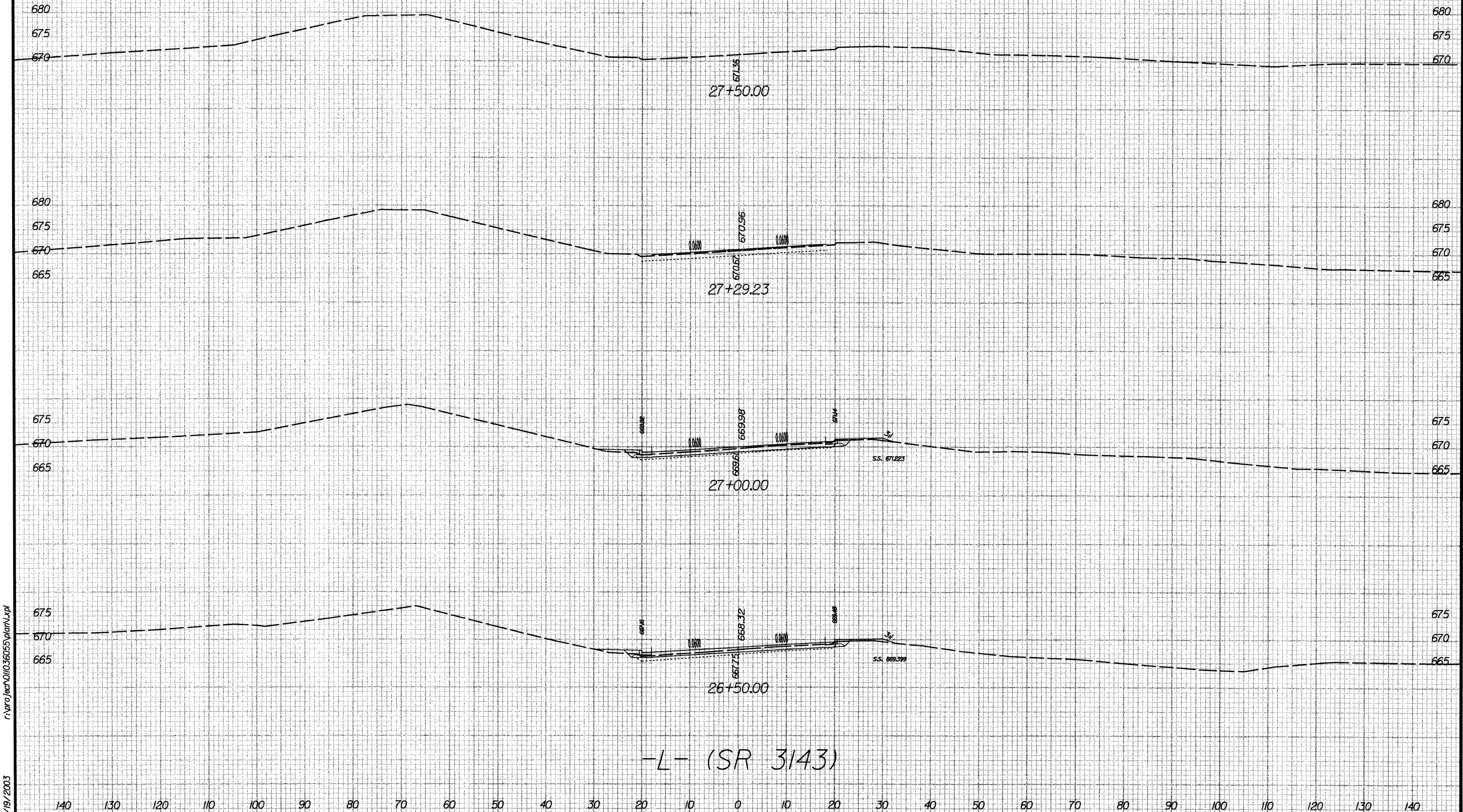


-L- (SR 3143)





-L- (SR 3143)

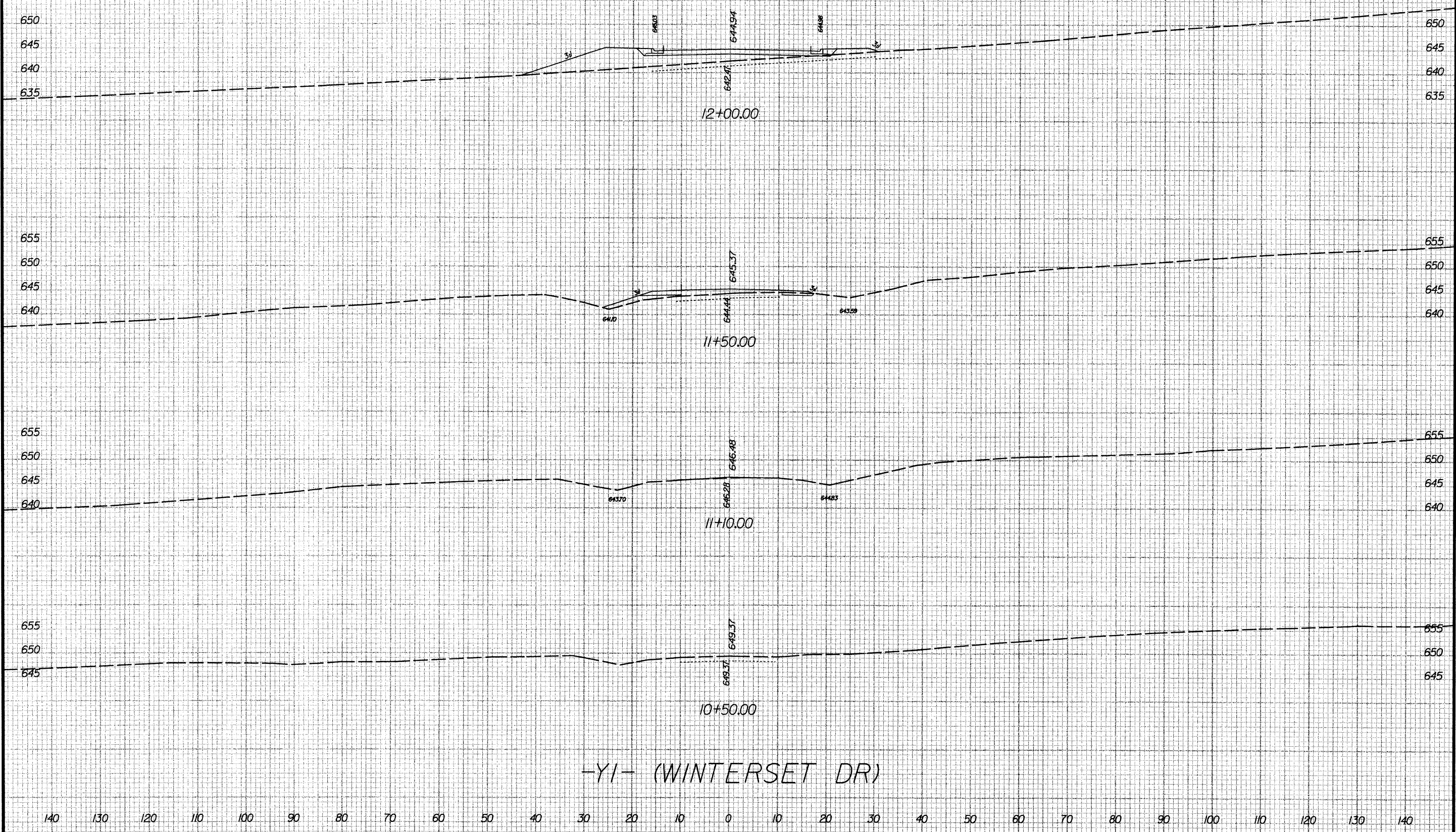


-L- (SR 3143)

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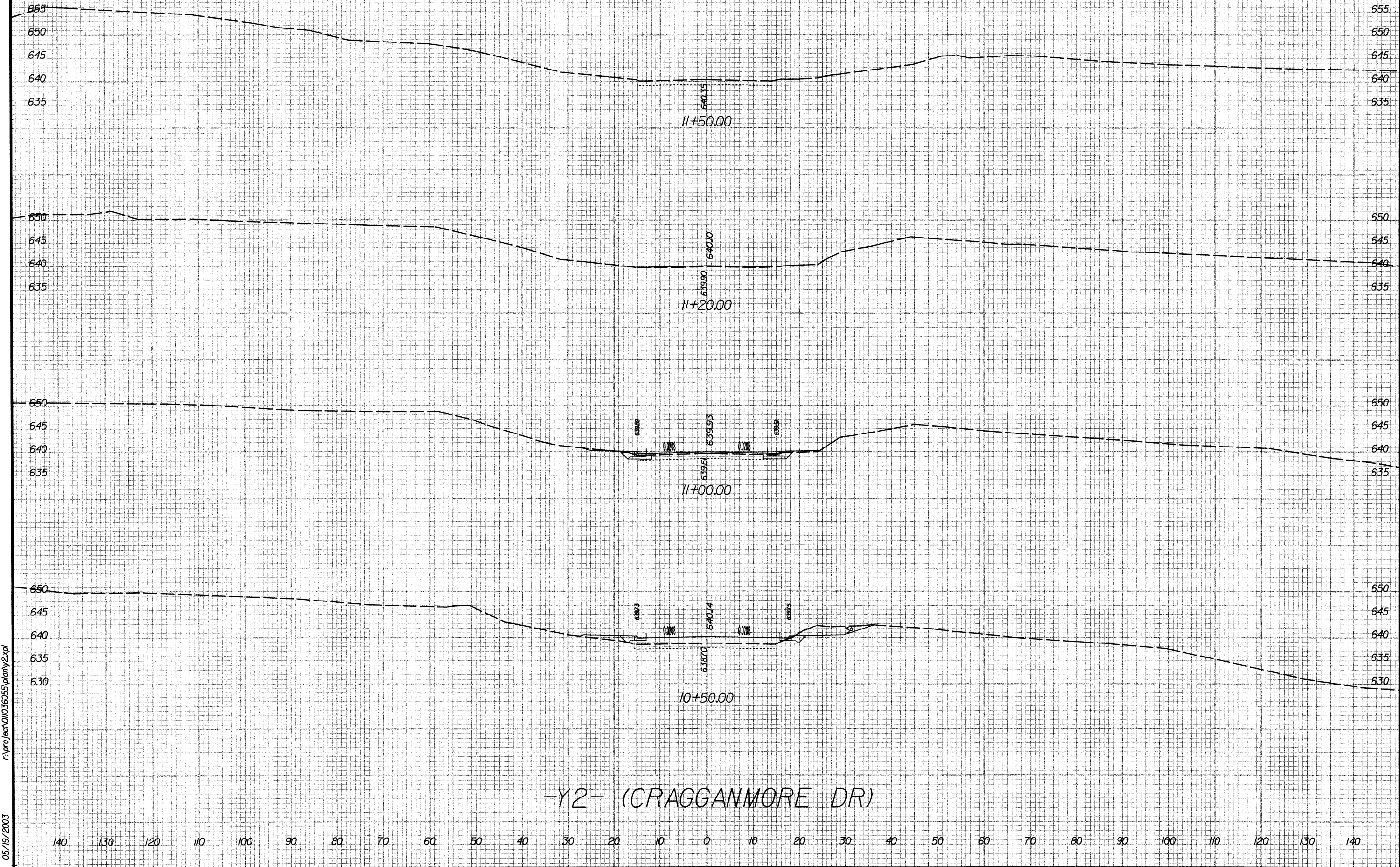
05/19/2003

PROJ. REFERENCE NO.	SHEET NO.	TOTAL SHEETS
B-365/	X-II	

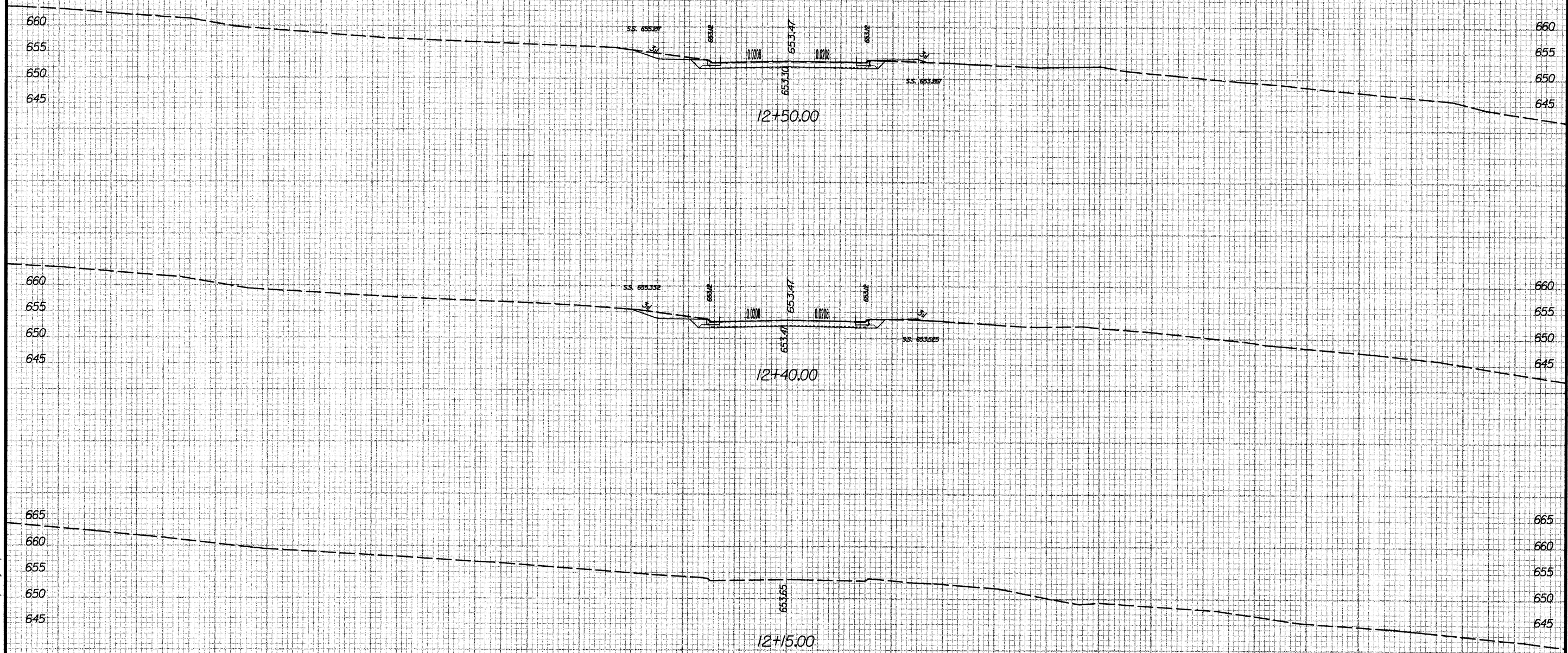


-YI- (WINTERSET DR)

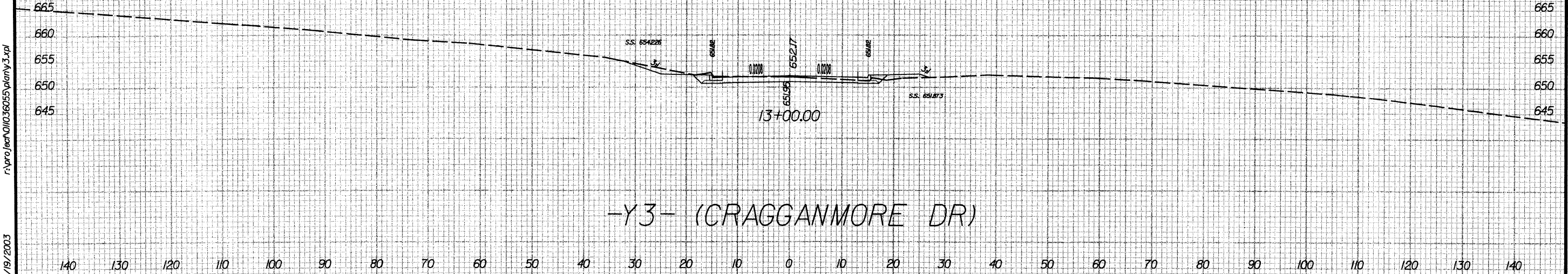
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05/19/2003



-Y2- (CRAGGANMORE DR)



-Y3- (CRAGGANMORE DR)



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05/19/2003